



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upo

WO#: 20122547

PM: CMM

Due Date: 10/03/19

CLIENT: PASI-MINN

F

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5
 Therm Fisher IR 6
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: #10 [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/21/19 JMS

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 9/19/2019 Results Requested By: 10/3/2019

G218



Workorder: 10492112 Workorder Name: 1497 Freeman WA-Cenex Harvest

Report To		Subcontract To					Requested Analysis														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426																					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					5644436 / Headspace Analysis	LAB USE ONLY									
						Other															
1	Marlow-GW-091819	PS	9/18/2019 16:10	10492112001	Water	3					X										
2																					
3																					
4																					
5																					

1141872

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	9/20/19 16:45	<i>[Signature]</i>	9/21/19 9:00	
2					
3					

Cooler Temperature on Receipt °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

013-2-01
ASJ

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <i>PACETWA</i>	1141872
Cooler Received/Opened On: 9/21/19	Temperature: 0.1
Received By: Carol Kemp	
Signature: <i>Carol Kemp</i>	

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	<i>NP</i>	<input checked="" type="checkbox"/>	
COC Signed / Accurate?		<input checked="" type="checkbox"/>	
Bottles arrive intact?		<input checked="" type="checkbox"/>	
Correct bottles used?		<input checked="" type="checkbox"/>	
Sufficient volume sent?		<input checked="" type="checkbox"/>	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

October 03, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

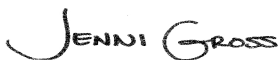
RE: Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492113

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 19, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
 A2LA Certification #: 2926.01
 Alabama Certification #: 40770
 Alaska Contaminated Sites Certification #: 17-009
 Alaska DW Certification #: MN00064
 Arizona Certification #: AZ0014
 Arkansas DW Certification #: MN00064
 Arkansas WW Certification #: 88-0680
 California Certification #: 2929
 CNMI Saipan Certification #: MP0003
 Colorado Certification #: MN00064
 Connecticut Certification #: PH-0256
 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
 Florida Certification #: E87605
 Georgia Certification #: 959
 Guam EPA Certification #: MN00064
 Hawaii Certification #: MN00064
 Idaho Certification #: MN00064
 Illinois Certification #: 200011
 Indiana Certification #: C-MN-01
 Iowa Certification #: 368
 Kansas Certification #: E-10167
 Kentucky DW Certification #: 90062
 Kentucky WW Certification #: 90062
 Louisiana DEQ Certification #: 03086
 Louisiana DW Certification #: MN00064
 Maine Certification #: MN00064
 Maryland Certification #: 322
 Massachusetts Certification #: M-MN064
 Michigan Certification #: 9909
 Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137
 Minnesota Petrofund Certification #: 1240
 Mississippi Certification #: MN00064
 Missouri Certification #: 10100
 Montana Certification #: CERT0092
 Nebraska Certification #: NE-OS-18-06
 Nevada Certification #: MN00064
 New Hampshire Certification #: 2081
 New Jersey Certification #: MN002
 New York Certification #: 11647
 North Carolina DW Certification #: 27700
 North Carolina WW Certification #: 530
 North Dakota Certification #: R-036
 Ohio DW Certification #: 41244
 Ohio VAP Certification #: CL101
 Oklahoma Certification #: 9507
 Oregon Primary Certification #: MN300001
 Oregon Secondary Certification #: MN200001
 Pennsylvania Certification #: 68-00563
 Puerto Rico Certification #: MN00064
 South Carolina Certification #:74003001
 Tennessee Certification #: TN02818
 Texas Certification #: T104704192
 Utah Certification #: MN00064
 Vermont Certification #: VT-027053137
 Virginia Certification #: 460163
 Washington Certification #: C486
 West Virginia DEP Certification #: 382
 West Virginia DW Certification #: 9952 C
 Wisconsin Certification #: 999407970
 Wyoming UST Certification #: via A2LA 2926.01

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
 Montana Certificate #CERT0103
 Alaska Certification UST-107
 Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
 Wisconsin DNR Certification #: 998027470
 WA Department of Ecology Lab ID# C1007

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
 11277CA
 Florida Department of Health (NELAC): E87595
 Illinois Environmental Protection Agency: 0025721
 Kansas Department of Health and Environment (NELAC):
 E-10266
 Louisiana Dept. of Environmental Quality (NELAC/LELAP):
 02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
 Texas Commission on Env. Quality (NELAC):
 T104704405-09-TX
 U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119
 Commonwealth of Virginia (TNI): 480246

Pace Analytical National Certification IDs

12065 Lebanon Road, Mt. Juliet, TN 37122
 Alabama Certification #: 40660

Alaska Certification 17-026
 Arizona Certification #: AZ0612

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492113

Pace Analytical National Certification IDs

Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364
Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975

New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10492113001	Thorson-GW-091819	Water	09/18/19 11:30	09/19/19 08:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10492113001	Thorson-GW-091819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V

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SUMMARY OF DETECTION

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10492113001	Thorson-GW-091819					
EPA 6010D	Barium, Dissolved	53.8	ug/L	10.0	09/27/19 10:42	
EPA 6010D	Copper, Dissolved	1.7J	ug/L	10.0	09/27/19 10:42	
EPA 6010D	Zinc, Dissolved	16.2J	ug/L	20.0	09/27/19 10:42	
SM 2320B	Alkalinity, Total as CaCO ₃	146	mg/L	5.0	09/26/19 10:14	
SM 2540C	Total Dissolved Solids	216	mg/L	10.0	09/25/19 12:44	
EPA 300.0	Chloride	1.3	mg/L	1.2	09/19/19 21:45	
EPA 300.0	Sulfate	2.6	mg/L	1.2	09/19/19 21:45	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 633558

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10492090005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3415553)
 - 2,2,4-Trimethylpentane
 - Dibromomethane

Additional Comments:

Analyte Comments:

QC Batch: 633558

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3415551)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 03, 2019

Analyte Comments:

QC Batch: 633558

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3415552)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3415553)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3415554)
 - 1,2-Dichloroethene (Total)
- Thorson-GW-091819 (Lab ID: 10492113001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3415551)
 - Dichlorofluoromethane
- LCS (Lab ID: 3415552)
 - Dichlorofluoromethane
- MS (Lab ID: 3415553)
 - Dichlorofluoromethane
- MSD (Lab ID: 3415554)
 - Dichlorofluoromethane
- Thorson-GW-091819 (Lab ID: 10492113001)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 158705

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20122719001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 711142)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 633434

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10491876001,10492090005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3414857)
 - Chloride
 - Nitrate as N
- MS (Lab ID: 3414859)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3414858)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3414860)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 634559

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10491655010,10491870001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3420090)
 - Nitrogen, NO2 plus NO3

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 03, 2019

General Information:

1 sample was analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Sample: Thorson-GW-091819 **Lab ID: 10492113001** Collected: 09/18/19 11:30 Received: 09/19/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/25/19 14:53	09/25/19 14:53	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/25/19 14:53	09/25/19 14:53	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/25/19 14:53	09/25/19 14:53	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/25/19 21:04	09/27/19 10:42	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/25/19 21:04	09/27/19 10:42	7440-38-2	
Barium, Dissolved	53.8	ug/L	10.0	0.60	1	09/25/19 21:04	09/27/19 10:42	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	09/25/19 21:04	09/27/19 10:42	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/25/19 21:04	09/27/19 10:42	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/25/19 21:04	09/27/19 10:42	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	09/25/19 21:04	09/27/19 10:42	7440-48-4	
Copper, Dissolved	1.7J	ug/L	10.0	1.2	1	09/25/19 21:04	09/27/19 10:42	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/25/19 21:04	09/27/19 10:42	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	09/25/19 21:04	09/27/19 10:42	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	09/25/19 21:04	09/27/19 10:42	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/25/19 21:04	09/27/19 10:42	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/25/19 21:04	09/27/19 10:42	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/25/19 21:04	09/27/19 10:42	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	09/25/19 21:04	09/27/19 10:42	7440-62-2	
Zinc, Dissolved	16.2J	ug/L	20.0	6.3	1	09/25/19 21:04	09/27/19 10:42	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/24/19 11:53	09/25/19 12:48	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/20/19 16:30	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/20/19 16:30	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/20/19 16:30	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/20/19 16:30	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/20/19 16:30	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/20/19 16:30	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/20/19 16:30	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/20/19 16:30	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/20/19 16:30	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/20/19 16:30	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/20/19 16:30	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/20/19 16:30	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/20/19 16:30	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/20/19 16:30	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/20/19 16:30	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/20/19 16:30	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/20/19 16:30	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/20/19 16:30	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/20/19 16:30	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/20/19 16:30	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Sample: **Thorson-GW-091819** Lab ID: **10492113001** Collected: 09/18/19 11:30 Received: 09/19/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/20/19 16:30	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/20/19 16:30	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/20/19 16:30	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/20/19 16:30	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/20/19 16:30	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/20/19 16:30	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/20/19 16:30	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/20/19 16:30	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/20/19 16:30	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/20/19 16:30	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/20/19 16:30	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/20/19 16:30	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/20/19 16:30	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/20/19 16:30	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/20/19 16:30	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/20/19 16:30	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/20/19 16:30	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/20/19 16:30	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/20/19 16:30	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/20/19 16:30	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/20/19 16:30	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/20/19 16:30	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/20/19 16:30	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/20/19 16:30	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/20/19 16:30	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/20/19 16:30	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/20/19 16:30	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/20/19 16:30	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/20/19 16:30	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/20/19 16:30	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/20/19 16:30	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/20/19 16:30	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/20/19 16:30	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/20/19 16:30	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/20/19 16:30	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/20/19 16:30	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/20/19 16:30	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/20/19 16:30	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/20/19 16:30	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/20/19 16:30	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/20/19 16:30	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/20/19 16:30	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/20/19 16:30	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/20/19 16:30	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/20/19 16:30	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/20/19 16:30	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492113

Sample: Thorson-GW-091819 **Lab ID: 10492113001** Collected: 09/18/19 11:30 Received: 09/19/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/20/19 16:30	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/20/19 16:30	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/20/19 16:30	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/20/19 16:30	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/20/19 16:30	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/20/19 16:30	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/20/19 16:30	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/20/19 16:30	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/20/19 16:30	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/20/19 16:30	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/20/19 16:30	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/20/19 16:30	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/20/19 16:30	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/20/19 16:30	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		09/20/19 16:30	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1		09/20/19 16:30	2037-26-5	
4-Bromofluorobenzene (S)	93	%	75-125		1		09/20/19 16:30	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	146	mg/L	5.0	2.0	1		09/26/19 10:14		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	216	mg/L	10.0	5.0	1		09/25/19 12:44		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/25/19 14:53	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.3	mg/L	1.2	0.12	1		09/19/19 21:45	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		09/19/19 21:45	14797-55-8	
Sulfate	2.6	mg/L	1.2	0.28	1		09/19/19 21:45	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		09/26/19 10:53		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 16:39	09/25/19 07:35		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		09/27/19 15:16	7440-44-0	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 1351457	Analysis Method: RSK-175
QC Batch Method: RSK175	Analysis Description: VOA (GC) RSK175
Associated Lab Samples: 10492113001	

METHOD BLANK: R3454500-1 Matrix: Water
Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	09/25/19 13:38	
Ethane	ug/L	<4.07	13.0	4.07	09/25/19 13:38	
Ethene	ug/L	<4.26	13.0	4.26	09/25/19 13:38	

LABORATORY CONTROL SAMPLE & LCSD: R3454500-4 R3454500-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	74.6	77.5	110	114	85.0-115	3.88	20	
Ethane	ug/L	129	122	127	94.6	98.4	85.0-115	3.93	20	
Ethene	ug/L	127	121	126	95.0	99.6	85.0-115	4.69	20	

SAMPLE DUPLICATE: R3454500-2

Parameter	Units	L1142312-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3454500-3

Parameter	Units	L1142411-05 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 633733

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water Dissolved

Associated Lab Samples: 10492113001

METHOD BLANK: 3416575

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	09/25/19 12:18	

LABORATORY CONTROL SAMPLE: 3416576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.6	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416577 3416578

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10491724002	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Mercury, Dissolved	ug/L	<0.093		5	5	5.4	5.4	107	108	80-120	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 633712

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010

Analysis Description: 6010D Water Dissolved

Associated Lab Samples: 10492113001

METHOD BLANK: 3416489

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	09/27/19 10:25	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	09/27/19 10:25	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	09/27/19 10:25	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	09/27/19 10:25	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	09/27/19 10:25	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	09/27/19 10:25	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	09/27/19 10:25	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	09/27/19 10:25	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	09/27/19 10:25	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	09/27/19 10:25	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	09/27/19 10:25	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	09/27/19 10:25	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	09/27/19 10:25	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	09/27/19 10:25	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	09/27/19 10:25	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	09/27/19 10:25	

LABORATORY CONTROL SAMPLE: 3416490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1010	101	80-120	
Arsenic, Dissolved	ug/L	1000	1020	102	80-120	
Barium, Dissolved	ug/L	1000	1020	102	80-120	
Beryllium, Dissolved	ug/L	1000	1030	103	80-120	
Cadmium, Dissolved	ug/L	1000	1050	105	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1030	103	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1030	103	80-120	
Molybdenum, Dissolved	ug/L	1000	1000	100	80-120	
Nickel, Dissolved	ug/L	1000	1020	102	80-120	
Selenium, Dissolved	ug/L	1000	1060	106	80-120	
Silver, Dissolved	ug/L	500	511	102	80-120	
Thallium, Dissolved	ug/L	1000	1000	100	80-120	
Vanadium, Dissolved	ug/L	1000	1010	101	80-120	
Zinc, Dissolved	ug/L	1000	1050	105	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Parameter	Units	10492113001		3416491		3416492		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	975	989	97	99	75-125	1	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1010	1030	101	103	75-125	1	20			
Barium, Dissolved	ug/L	53.8	1000	1000	1070	1080	101	102	75-125	1	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1030	1040	103	104	75-125	1	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1030	1040	103	104	75-125	1	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	1010	1030	101	103	75-125	1	20			
Cobalt, Dissolved	ug/L	<0.50	1000	1000	1010	1020	101	102	75-125	1	20			
Copper, Dissolved	ug/L	1.7J	1000	1000	1000	1010	100	101	75-125	1	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	1010	1020	101	102	75-125	1	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	983	991	98	99	75-125	1	20			
Nickel, Dissolved	ug/L	<1.1	1000	1000	995	1010	100	101	75-125	1	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1040	1050	104	105	75-125	1	20			
Silver, Dissolved	ug/L	<0.40	500	500	508	513	102	103	75-125	1	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	991	1000	99	100	75-125	1	20			
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1010	1020	101	102	75-125	1	20			
Zinc, Dissolved	ug/L	16.2J	1000	1000	1040	1050	103	104	75-125	1	20			

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 633558

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10492113001

METHOD BLANK: 3415551

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	09/20/19 12:08	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	09/20/19 12:08	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	09/20/19 12:08	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	09/20/19 12:08	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	09/20/19 12:08	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	09/20/19 12:08	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	09/20/19 12:08	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	09/20/19 12:08	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	09/20/19 12:08	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	09/20/19 12:08	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	09/20/19 12:08	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	09/20/19 12:08	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	09/20/19 12:08	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	09/20/19 12:08	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	09/20/19 12:08	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	09/20/19 12:08	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	09/20/19 12:08	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	09/20/19 12:08	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	09/20/19 12:08	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	09/20/19 12:08	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	09/20/19 12:08	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	09/20/19 12:08	
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	200	16.3	09/20/19 12:08	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	09/20/19 12:08	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	09/20/19 12:08	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	09/20/19 12:08	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	09/20/19 12:08	
2-Hexanone	ug/L	<0.88	5.0	0.88	09/20/19 12:08	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	09/20/19 12:08	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	09/20/19 12:08	
Acetone	ug/L	<9.2	20.0	9.2	09/20/19 12:08	
Acrolein	ug/L	<1.2	10.0	1.2	09/20/19 12:08	
Acrylonitrile	ug/L	<0.91	10.0	0.91	09/20/19 12:08	
Benzene	ug/L	<0.10	0.50	0.10	09/20/19 12:08	
Bromobenzene	ug/L	<0.21	0.50	0.21	09/20/19 12:08	
Bromochloromethane	ug/L	<0.27	1.0	0.27	09/20/19 12:08	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	09/20/19 12:08	
Bromoform	ug/L	<0.80	4.0	0.80	09/20/19 12:08	
Bromomethane	ug/L	<1.8	4.0	1.8	09/20/19 12:08	
Carbon disulfide	ug/L	<0.078	1.0	0.078	09/20/19 12:08	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	09/20/19 12:08	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

METHOD BLANK: 3415551

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	09/20/19 12:08	
Chloroethane	ug/L	<0.49	1.0	0.49	09/20/19 12:08	
Chloroform	ug/L	<0.45	1.0	0.45	09/20/19 12:08	
Chloromethane	ug/L	<0.16	4.0	0.16	09/20/19 12:08	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	09/20/19 12:08	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	09/20/19 12:08	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	09/20/19 12:08	
Dibromomethane	ug/L	<0.16	1.0	0.16	09/20/19 12:08	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	09/20/19 12:08	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	09/20/19 12:08	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	09/20/19 12:08	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	09/20/19 12:08	
Ethylbenzene	ug/L	<0.14	0.50	0.14	09/20/19 12:08	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	09/20/19 12:08	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	09/20/19 12:08	
m&p-Xylene	ug/L	<0.31	1.0	0.31	09/20/19 12:08	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	09/20/19 12:08	
Methylene Chloride	ug/L	<0.98	4.0	0.98	09/20/19 12:08	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	09/20/19 12:08	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	09/20/19 12:08	
Naphthalene	ug/L	<0.48	1.0	0.48	09/20/19 12:08	
o-Xylene	ug/L	<0.16	0.50	0.16	09/20/19 12:08	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	09/20/19 12:08	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	09/20/19 12:08	
Styrene	ug/L	<0.19	1.0	0.19	09/20/19 12:08	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	09/20/19 12:08	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	09/20/19 12:08	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	09/20/19 12:08	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	09/20/19 12:08	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	09/20/19 12:08	
Toluene	ug/L	<0.083	0.50	0.083	09/20/19 12:08	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	09/20/19 12:08	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	09/20/19 12:08	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	09/20/19 12:08	
Trichloroethene	ug/L	<0.15	0.40	0.15	09/20/19 12:08	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	09/20/19 12:08	
Vinyl acetate	ug/L	<1.1	10.0	1.1	09/20/19 12:08	
Vinyl chloride	ug/L	<0.092	0.20	0.092	09/20/19 12:08	
Xylene (Total)	ug/L	<0.31	1.5	0.31	09/20/19 12:08	
1,2-Dichloroethane-d4 (S)	%	97	75-136		09/20/19 12:08	
4-Bromofluorobenzene (S)	%	93	75-125		09/20/19 12:08	
Toluene-d8 (S)	%	98	75-125		09/20/19 12:08	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

LABORATORY CONTROL SAMPLE: 3415552

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	19.1	95	68-141	
1,1,1-Trichloroethane	ug/L	20	19.7	99	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	19.3	97	73-125	
1,1,2-Trichloroethane	ug/L	20	19.9	100	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.7	99	69-132	
1,1-Dichloroethane	ug/L	20	19.0	95	73-125	
1,1-Dichloroethene	ug/L	20	18.8	94	71-126	
1,1-Dichloropropene	ug/L	20	19.0	95	73-126	
1,2,3-Trichlorobenzene	ug/L	20	17.9	90	72-126	
1,2,3-Trichloropropane	ug/L	20	19.0	95	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.2	86	71-134	
1,2,4-Trimethylbenzene	ug/L	20	18.6	93	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	48.8	98	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.4	97	75-129	
1,2-Dichlorobenzene	ug/L	20	18.4	92	75-129	
1,2-Dichloroethane	ug/L	20	19.3	97	75-125	
1,2-Dichloroethene (Total)	ug/L	40	37.5	94	74-125	N2
1,2-Dichloropropane	ug/L	20	18.9	94	75-125	
1,3,5-Trimethylbenzene	ug/L	20	18.2	91	75-127	
1,3-Dichlorobenzene	ug/L	20	18.8	94	75-126	
1,3-Dichloropropane	ug/L	20	18.6	93	75-125	
1,4-Dichlorobenzene	ug/L	20	18.1	90	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	403	101	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.0	95	72-128	
2,2-Dichloropropane	ug/L	20	18.7	93	65-138	
2-Butanone (MEK)	ug/L	100	115	115	59-144	
2-Chlorotoluene	ug/L	20	17.6	88	75-127	
2-Hexanone	ug/L	100	104	104	73-134	
4-Chlorotoluene	ug/L	20	17.9	90	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	62-141	
Acetone	ug/L	100	116	116	60-137	
Acrolein	ug/L	200	229	115	60-141	
Acrylonitrile	ug/L	200	193	96	75-129	
Benzene	ug/L	20	18.9	95	73-125	
Bromobenzene	ug/L	20	18.3	92	73-125	
Bromochloromethane	ug/L	20	20.6	103	75-135	
Bromodichloromethane	ug/L	20	18.5	92	75-125	
Bromoform	ug/L	20	19.7	99	67-136	
Bromomethane	ug/L	20	16.3	81	30-150	
Carbon disulfide	ug/L	20	17.7	89	47-137	
Carbon tetrachloride	ug/L	20	20.1	100	75-125	
Chlorobenzene	ug/L	20	18.1	91	75-125	
Chloroethane	ug/L	20	20.3	102	63-136	
Chloroform	ug/L	20	18.9	94	73-128	
Chloromethane	ug/L	20	18.2	91	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.7	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.9	99	74-125	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

LABORATORY CONTROL SAMPLE: 3415552

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	20.5	103	75-125	
Dibromomethane	ug/L	20	22.8	114	75-125	
Dichlorodifluoromethane	ug/L	20	18.6	93	63-132	
Dichlorofluoromethane	ug/L	20	19.0	95	68-127	
Diisopropyl ether	ug/L	20	18.9	94	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.6	88	75-125	
Ethylbenzene	ug/L	20	18.4	92	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.8	89	72-134	
Isopropylbenzene (Cumene)	ug/L	20	18.6	93	75-125	
m&p-Xylene	ug/L	40	37.7	94	75-126	
Methyl-tert-butyl ether	ug/L	20	18.5	92	75-125	
Methylene Chloride	ug/L	20	19.2	96	70-125	
n-Butylbenzene	ug/L	20	18.9	95	75-126	
n-Propylbenzene	ug/L	20	17.9	90	73-127	
Naphthalene	ug/L	20	16.2	81	63-128	
o-Xylene	ug/L	20	19.8	99	75-128	
p-Isopropyltoluene	ug/L	20	19.0	95	75-125	
sec-Butylbenzene	ug/L	20	19.6	98	75-126	
Styrene	ug/L	20	19.4	97	75-125	
tert-Amylmethyl ether	ug/L	20	18.4	92	75-125	
tert-Butyl Alcohol	ug/L	200	184	92	75-130	
tert-Butylbenzene	ug/L	20	18.8	94	75-131	
Tetrachloroethene	ug/L	20	19.4	97	74-125	
Tetrahydrofuran	ug/L	200	201	101	64-138	
Toluene	ug/L	20	18.2	91	74-125	
trans-1,2-Dichloroethene	ug/L	20	18.8	94	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	41.1	82	60-127	
Trichloroethene	ug/L	20	19.8	99	75-127	
Trichlorofluoromethane	ug/L	20	19.1	96	72-133	
Vinyl acetate	ug/L	20	20.0	100	61-129	
Vinyl chloride	ug/L	20	19.3	96	75-128	
Xylene (Total)	ug/L	60	57.5	96	75-125	
1,2-Dichloroethane-d4 (S)	%			99	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			95	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415553 3415554

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492090005 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.3	20.6	101	103	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.3	22.7	112	113	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.1	19.6	95	98	66-134	3	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20.6	21.1	103	106	75-126	3	30		

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Parameter	Units	3415553			3415554			% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		10492090005	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	24.0	24.3	120	122	65-146	1	30			
1,1-Dichloroethane	ug/L	<0.17	20	20	20.7	20.0	103	100	68-132	3	30			
1,1-Dichloroethene	ug/L	<0.16	20	20	22.5	21.2	113	106	66-139	6	30			
1,1-Dichloropropene	ug/L	<0.20	20	20	22.8	22.6	114	113	67-134	1	30			
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	20.7	21.6	103	108	67-129	5	30			
1,2,3-Trichloropropane	ug/L	<0.26	20	20	18.8	19.7	94	98	69-128	5	30			
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	20.3	19.5	101	97	65-140	4	30			
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	20.0	21.8	100	109	71-133	8	30			
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.2	51.4	94	103	54-138	9	30			
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20.5	21.1	102	105	68-125	3	30			
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.4	21.2	97	106	74-136	9	30			
1,2-Dichloroethane	ug/L	<0.22	20	20	20.2	21.4	101	107	68-125	6	30			
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	43.6	41.1	109	103	71-126	6	30	N2		
1,2-Dichloropropane	ug/L	<0.16	20	20	20.1	23.5	101	118	67-125	16	30			
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.9	22.1	100	111	68-137	10	30			
1,3-Dichlorobenzene	ug/L	<0.16	20	20	20.1	21.7	101	109	75-131	8	30			
1,3-Dichloropropane	ug/L	<0.070	20	20	19.9	19.7	100	99	71-125	1	30			
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.5	20.6	97	103	74-126	6	30			
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	400	400	406	416	101	104	68-125	3	30			
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	27.1	22.0	135	110	54-129	21	30	M1		
2,2-Dichloropropane	ug/L	<0.17	20	20	21.4	21.1	107	105	69-139	1	30			
2-Butanone (MEK)	ug/L	<0.99	100	100	95.1	97.1	95	97	54-144	2	30			
2-Chlorotoluene	ug/L	<0.16	20	20	19.0	20.7	95	103	75-134	9	30			
2-Hexanone	ug/L	<0.88	100	100	94.4	102	94	102	58-137	8	30			
4-Chlorotoluene	ug/L	<0.13	20	20	19.2	20.7	96	103	72-133	8	30			
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	98.4	104	98	104	60-129	6	30			
Acetone	ug/L	<9.2	100	100	96.5	97.5	96	98	62-132	1	30			
Acrolein	ug/L	<1.2	200	200	257	255	128	127	30-150	1	30			
Acrylonitrile	ug/L	<0.91	200	200	194	202	97	101	68-125	4	30			
Benzene	ug/L	<0.10	20	20	20.8	20.9	104	105	68-125	1	30			
Bromobenzene	ug/L	<0.21	20	20	18.9	20.7	95	103	73-126	9	30			
Bromochloromethane	ug/L	<0.27	20	20	21.9	21.8	110	109	66-143	1	30			
Bromodichloromethane	ug/L	<0.22	20	20	19.4	21.9	97	109	74-125	12	30			
Bromoform	ug/L	<0.80	20	20	20.2	21.0	101	105	64-134	4	30			
Bromomethane	ug/L	<1.8	20	20	18.2	18.6	91	93	30-150	2	30			
Carbon disulfide	ug/L	<0.078	20	20	21.7	19.5	109	97	43-147	11	30			
Carbon tetrachloride	ug/L	<0.19	20	20	23.7	23.5	118	117	71-143	1	30			
Chlorobenzene	ug/L	<0.17	20	20	19.0	20.1	95	101	75-125	6	30			
Chloroethane	ug/L	<0.49	20	20	22.8	22.8	114	114	75-129	0	30			
Chloroform	ug/L	<0.45	20	20	19.9	19.4	99	97	66-132	3	30			
Chloromethane	ug/L	<0.16	20	20	21.5	21.4	107	107	53-137	1	30			
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	21.3	20.8	107	104	67-133	2	30			
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	19.8	95	99	66-125	4	30			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Parameter	Units	3415553		3415554		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10492090005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	21.3	22.5	107	112	62-132	5	30		
Dibromomethane	ug/L	<0.16	20	20	25.3	22.5	126	113	67-125	11	30	M1	
Dichlorodifluoromethane	ug/L	<0.23	20	20	24.8	23.9	124	120	71-142	3	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	22.4	22.3	112	112	70-131	0	30		
Diisopropyl ether	ug/L	<0.13	20	20	20.0	19.7	100	99	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	18.3	18.5	92	93	66-128	1	30		
Ethylbenzene	ug/L	<0.14	20	20	20.3	21.2	102	106	74-126	4	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	24.5	19.8	123	99	68-143	21	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	20.7	22.4	104	112	74-130	8	30		
m&p-Xylene	ug/L	<0.31	40	40	41.2	43.8	103	110	69-132	6	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.6	19.5	98	97	65-131	1	30		
Methylene Chloride	ug/L	<0.98	20	20	21.3	20.2	107	101	57-125	5	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.6	21.2	113	106	71-131	7	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.1	21.7	101	109	67-138	8	30		
Naphthalene	ug/L	<0.48	20	20	17.2	19.0	86	95	60-130	10	30		
o-Xylene	ug/L	<0.16	20	20	20.4	22.6	102	113	69-131	10	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	22.4	21.9	112	109	72-133	2	30		
sec-Butylbenzene	ug/L	<0.15	20	20	23.3	22.9	117	114	73-134	2	30		
Styrene	ug/L	<0.19	20	20	19.9	21.2	100	106	72-125	6	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	19.1	19.9	96	99	67-125	4	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	184	203	92	101	64-137	9	30		
tert-Butylbenzene	ug/L	<0.15	20	20	22.1	22.7	110	114	70-143	3	30		
Tetrachloroethene	ug/L	<0.17	20	20	21.4	23.1	107	115	72-129	7	30		
Tetrahydrofuran	ug/L	<2.2	200	200	204	226	102	113	66-128	10	30		
Toluene	ug/L	<0.083	20	20	19.5	20.0	98	100	73-125	3	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	22.2	20.3	111	101	62-137	9	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	21.2	21.2	106	106	61-136	0	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	40.2	43.1	80	86	45-128	7	30		
Trichloroethene	ug/L	<0.15	20	20	22.3	22.3	111	112	74-132	0	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	23.6	23.4	118	117	75-139	1	30		
Vinyl acetate	ug/L	<1.1	20	20	20.9	20.7	104	103	51-135	1	30		
Vinyl chloride	ug/L	<0.092	20	20	25.1	23.5	125	118	68-146	6	30		
Xylene (Total)	ug/L	<0.31	60	60	61.6	66.5	103	111	67-137	8	30		
1,2-Dichloroethane-d4 (S)	%						97	95	75-136				
4-Bromofluorobenzene (S)	%						92	91	75-125				
Toluene-d8 (S)	%						92	92	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 634678

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 10492113001

METHOD BLANK: 3420836

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<2.0	5.0	2.0	09/26/19 08:08	

LABORATORY CONTROL SAMPLE & LCSD: 3420837

3420838

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.5	42.3	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420839

3420840

Parameter	Units	10492172002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	103	40	40	144	144	103	102	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420841

3420842

Parameter	Units	10492113001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	146	40	40	189	194	106	119	80-120	3	20	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 634181

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10492113001

METHOD BLANK: 3418509

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	09/25/19 12:44	

LABORATORY CONTROL SAMPLE: 3418510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3418511

Parameter	Units	10492090004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	233	224	4	5	

SAMPLE DUPLICATE: 3418512

Parameter	Units	10492090005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	235	229	3	5	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 158705

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10492113001

METHOD BLANK: 711139

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	09/25/19 14:27	

LABORATORY CONTROL SAMPLE: 711140

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.22	109	90-110	

MATRIX SPIKE SAMPLE: 711142

Parameter	Units	20122719001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.11	54	75-125	M1

SAMPLE DUPLICATE: 711141

Parameter	Units	20122719001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0054		20	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492113

QC Batch: 633434 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10492113001

METHOD BLANK: 3414855 Matrix: Water
Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	09/19/19 18:15	
Nitrate as N	mg/L	<0.012	0.10	0.012	09/19/19 18:15	
Sulfate	mg/L	<0.28	1.2	0.28	09/19/19 18:15	

LABORATORY CONTROL SAMPLE: 3414856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.9	96	90-110	
Nitrate as N	mg/L	1	0.93	93	90-110	
Sulfate	mg/L	12.5	11.4	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3414857 3414858

Parameter	Units	10491876001		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	19.7	12.5	12.5	28.1	28.2	67	68	90-110	0	20	M1	
Nitrate as N	mg/L	0.42	1	1	1.3	1.3	86	86	90-110	0	20	M1	
Sulfate	mg/L	2.1J	12.5	12.5	14.1	14.1	96	96	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3414859 3414860

Parameter	Units	10492090005		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	1.3	12.5	12.5	12.4	12.4	89	89	90-110	0	20	M1	
Nitrate as N	mg/L	1.1	1	1	1.9	1.9	77	77	90-110	0	20	M1	
Sulfate	mg/L	14.4	12.5	12.5	23.9	24.1	76	77	90-110	1	20	M1	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 634559

Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Associated Lab Samples: 10492113001

METHOD BLANK: 3420088

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	09/26/19 09:25	

LABORATORY CONTROL SAMPLE: 3420089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420090 3420091

Parameter	Units	10491655010	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits			
Nitrogen, NO2 plus NO3	mg/L	16.3	1	1	17.1	17.3	80	100	90-110	1	20	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420092 3420093

Parameter	Units	10491870001	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits			
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1.0	1.0	100	100	90-110	0	20	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 634119

Analysis Method: EPA 410.4

QC Batch Method: EPA 410.4

Analysis Description: 410.4 COD

Associated Lab Samples: 10492113001

METHOD BLANK: 3418145

Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	09/25/19 07:33	

LABORATORY CONTROL SAMPLE: 3418146

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	309	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3418147 3418148

Parameter	Units	3418147		3418148		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492109001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Chemical Oxygen Demand	mg/L	<17.0	250	250	253	245	101	98	90-110	3	20		

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

QC Batch: 175792 Analysis Method: SM 5310C
 QC Batch Method: SM 5310C Analysis Description: 5310C TOC
 Associated Lab Samples: 10492113001

METHOD BLANK: 696584 Matrix: Water

Associated Lab Samples: 10492113001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	09/27/19 12:28	

LABORATORY CONTROL SAMPLE: 696585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.2	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696586 696587

Parameter	Units	10492264001		696586		696587		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Total Organic Carbon	mg/L	<1.0	25	25	25.6	26.0	101	102	80-120	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696588 696589

Parameter	Units	10492503001		696588		696589		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Total Organic Carbon	mg/L	<393 ug/L	25	25	25.6	25.7	102	102	80-120	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492113

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492113001	Thorson-GW-091819	RSK175	1351457	RSK-175	1351457
10492113001	Thorson-GW-091819	EPA 3010	633712	EPA 6010D	634702
10492113001	Thorson-GW-091819	EPA 7470A	633733	EPA 7470A	634286
10492113001	Thorson-GW-091819	EPA 8260B	633558		
10492113001	Thorson-GW-091819	SM 2320B	634678		
10492113001	Thorson-GW-091819	SM 2540C	634181		
10492113001	Thorson-GW-091819	SM 4500-S-2 D	158705		
10492113001	Thorson-GW-091819	EPA 300.0	633434		
10492113001	Thorson-GW-091819	EPA 353.2	634559		
10492113001	Thorson-GW-091819	EPA 410.4	634119	EPA 410.4	634331
10492113001	Thorson-GW-091819	SM 5310C	175792		

REPORT OF LABORATORY ANALYSIS

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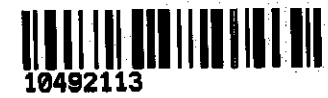
CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsn	Regulatory Agency
Address: 999 W Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza Copy To: David Hodson, UPRR-Sysdat@ghd.com	Company: UPRR Address: 1400 W. 52nd Ave, Denver, CO 80221	
Email:	Purchase Order # PEDD# 1497	Contract# 9900758938	State / Location
Phone:	Project Name: Freeman WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross	
Requested Due Date: 10 Day Standard	Project #: 1497	Pace Profile #: 36447 / 4	WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (C-GAS, C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analyses Test	Requested Analysis Filtered (Y/N)																	
				DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH - Zn Acetate	Other	Low Level VOCs by B200	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0		2540 TDS	TOC 5370	Sulfide /500	Methane, Ethane, Ethane RSK175	COD 410 / 4	Nitrate-Nitro 363.2	4500 Total Phosphorus	6010 Total Iron	MS/MSD Requested									
1	Thorson-GW-091819	GW	GC	9/18/2019	1130	-13	1	X	X	X	X	X							Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2																																				
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

WO#: 10492113



10492113

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Short hold analyses are in bold	K-R-SL / Jacobs	9/18/19	1630	IS - PACE	9/19/19	8:00am	Y X F
*Field filtered by client							

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Karla Savage
SIGNATURE of SAMPLER:	<i>K-R-SL</i>
DATE Signed:	9/18/19

Sample Condition Upon Receipt

Client Name: UPRR - Jacobs

Project #:

WO#: 10492113

PM: JMG

Due Date: 10/03/19

CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeeDee Commercial See Exceptions

Tracking Number: 4394 3733 2915

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.1</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>0.0</u>	Cooler Temp Corrected w/temp blank: <u>0.1</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: 9/19/19 J

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> Coliform, <u>DOC</u> Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
		pH Paper Lot# <u>207619</u>
		Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip <u>1002401</u>
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Oyeyemi Odugbo

Date: 9/20/19

Note: Whenever there is a discrepancy affecting Non-Compliance samples, a copy of this form will be sent to the North Carolina DEHNP Certification Office (be out of no c, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes



Workorder: 10492113 Workorder Name: 1497 Freeman WA-Cenex Harvest Owner Received Date: 9/19/2019 Results Requested By: 10/3/2019

Report To			Subcontract To			Requested Analysis																												
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426			Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042			<div style="display: flex; justify-content: space-between;"> 5632354 / 5310 TOC LAB USE ONLY </div>																												
																	Preserved Containers																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix												H2SO4																	
1	Thorson-GW-091819	PS	9/18/2019 11:30	10492113001	Water												2									X								
2																																		
3																																		
4																																		
5																																		
															Comments																			
Transfers	Released By			Date/Time	Received By		Date/Time																											
1					RC		9/23/19			1900																								
2	RC			9/23/19	B. Mathews		2330			9/24/19 06:30																								
3																																		
Cooler Temperature on Receipt		Custody Seal		Received on Ice		Samples Intact																												
6.6 °C		X or N		X or N		X or N																												

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace WA

Project #:
WO# : 12135900
 PM: RK1 Due Date: 10/03/19
 CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.3 Cooler Temp Corrected °C: 0.6 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 9/23/19 DC

	Comments:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WF</u>	
All containers needing acid/base preservation properly preserved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lauren Ferrier Date: 9/24/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)


Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No

Workorder: 10492113 Workorder Name: 1497 Freeman WA-Cenex Harvest Owner Received Date: 9/19/2019 Results Requested By: 10/3/2019

Report To		Subcontract To					Requested Analysis																			
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469 0333					<div style="text-align: center; font-size: 2em; font-weight: bold;">WO# : 20122545</div>  <div style="text-align: center; font-weight: bold;">20122545</div>																			
BPZZ																										
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Other	Preserved Containers					LAB USE ONLY														
1	Thorson-GW-091819	PS	9/18/2019 11:30	10492113001	Water	1																				
2																										
3																										
4																										
5																										
Transfers		Released By		Date/Time		Received By		Date/Time		Comments																
1		K PACE		9/20/19 1636		[Signature]		9/21/19 0900																		
2		Fred Ex		9/21/19 0900		[Signature]		9/21/19 0900																		
3																										
Cooler Temperature on Receipt		3.0 °C		Custody Seal		Y or N		Received on Ice		Y or N		Samples Intact Y or N														

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon

WO#: 20122545

PM: CMM

Due Date: 10/03/19

Pr

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5
 Therm Fisher IR 6
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

#10
Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/21/19 JMS

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present??	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 9/19/2019 Results Requested By: 10/3/2019

Workorder: 10492113 Workorder Name: 1497 Freeman WA-Cenex Harvest

G215



Report To		Subcontract To					Requested Analysis																						
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426																													
						Preserved Containers						5644436 / Headspace Analysis																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Other																							
1	Thorson-GW-091819	PS	9/18/2019 11:30	10492113001	Water	3																							
2																													
3																													
4																													
5																													

1141570

LAB USE ONLY

Transfers					Comments				
Released By	Date/Time	Received By	Date/Time						
<i>[Signature]</i>	9/18/2019	<i>[Signature]</i>	9/18/19						
			9:00						

Cooler Temperature on Receipt 0.1 °C Custody Seal or N Received on Ice or N Samples Intact or N

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0.3-12=0.1
ASm

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <i>PACETWA</i>	<i>1141870</i>
Cooler Received/Opened On: <i>9/21/19</i> Temperature: <i>0.1</i>	
Received By: <i>Carol Kemp</i>	
Signature: <i>Carol Kemp</i>	
Receipt Check List	
	NP Yes No
COC Seal Present / Intact?	<input checked="" type="checkbox"/> <input type="checkbox"/>
COC Signed / Accurate?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Bottles arrive intact?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Correct bottles used?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Sufficient volume sent?	<input checked="" type="checkbox"/> <input type="checkbox"/>
If Applicable	
VOA Zero headspace?	
Preservation Correct / Checked?	

October 04, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

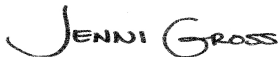
RE: Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
 A2LA Certification #: 2926.01
 Alabama Certification #: 40770
 Alaska Contaminated Sites Certification #: 17-009
 Alaska DW Certification #: MN00064
 Arizona Certification #: AZ0014
 Arkansas DW Certification #: MN00064
 Arkansas WW Certification #: 88-0680
 California Certification #: 2929
 CNMI Saipan Certification #: MP0003
 Colorado Certification #: MN00064
 Connecticut Certification #: PH-0256
 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
 Florida Certification #: E87605
 Georgia Certification #: 959
 Guam EPA Certification #: MN00064
 Hawaii Certification #: MN00064
 Idaho Certification #: MN00064
 Illinois Certification #: 200011
 Indiana Certification #: C-MN-01
 Iowa Certification #: 368
 Kansas Certification #: E-10167
 Kentucky DW Certification #: 90062
 Kentucky WW Certification #: 90062
 Louisiana DEQ Certification #: 03086
 Louisiana DW Certification #: MN00064
 Maine Certification #: MN00064
 Maryland Certification #: 322
 Massachusetts Certification #: M-MN064
 Michigan Certification #: 9909
 Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137
 Minnesota Petrofund Certification #: 1240
 Mississippi Certification #: MN00064
 Missouri Certification #: 10100
 Montana Certification #: CERT0092
 Nebraska Certification #: NE-OS-18-06
 Nevada Certification #: MN00064
 New Hampshire Certification #: 2081
 New Jersey Certification #: MN002
 New York Certification #: 11647
 North Carolina DW Certification #: 27700
 North Carolina WW Certification #: 530
 North Dakota Certification #: R-036
 Ohio DW Certification #: 41244
 Ohio VAP Certification #: CL101
 Oklahoma Certification #: 9507
 Oregon Primary Certification #: MN300001
 Oregon Secondary Certification #: MN200001
 Pennsylvania Certification #: 68-00563
 Puerto Rico Certification #: MN00064
 South Carolina Certification #: 74003001
 Tennessee Certification #: TN02818
 Texas Certification #: T104704192
 Utah Certification #: MN00064
 Vermont Certification #: VT-027053137
 Virginia Certification #: 460163
 Washington Certification #: C486
 West Virginia DEP Certification #: 382
 West Virginia DW Certification #: 9952 C
 Wisconsin Certification #: 999407970
 Wyoming UST Certification #: via A2LA 2926.01

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
 Montana Certificate #CERT0103
 Alaska Certification UST-107
 Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
 Wisconsin DNR Certification #: 998027470
 WA Department of Ecology Lab ID# C1007

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
 11277CA
 Florida Department of Health (NELAC): E87595
 Illinois Environmental Protection Agency: 0025721
 Kansas Department of Health and Environment (NELAC):
 E-10266
 Louisiana Dept. of Environmental Quality (NELAC/LELAP):
 02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
 Texas Commission on Env. Quality (NELAC):
 T104704405-09-TX
 U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119
 Commonwealth of Virginia (TNI): 480246

Pace Analytical National Certification IDs

12065 Lebanon Road, Mt. Juliet, TN 37122
 Alabama Certification #: 40660

Alaska Certification 17-026
 Arizona Certification #: AZ0612

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Pace Analytical National Certification IDs

Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364
Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975

New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10492282001	TB05-091919	Water	09/19/19 07:30	09/20/19 08:45
10492282002	MW6U-GW-091919	Water	09/19/19 08:55	09/20/19 08:45
10492282003	MW6D-GW-091919	Water	09/19/19 09:50	09/20/19 08:45
10492282004	MW17D-GW-091919	Water	09/19/19 10:30	09/20/19 08:45
10492282005	WS5-GW-091919	Water	09/19/19 10:55	09/20/19 08:45
10492282006	MW14D-GW-091919	Water	09/19/19 15:00	09/20/19 08:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10492282001	TB05-091919	EPA 8260B	DS2	83	PASI-M
10492282002	MW6U-GW-091919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492282003	MW6D-GW-091919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492282004	MW17D-GW-091919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492282005	WS5-GW-091919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492282006	MW14D-GW-091919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10492282002	MW6U-GW-091919					
EPA 6010D	Barium, Dissolved	46.6	ug/L	10.0	10/01/19 12:35	
EPA 6010D	Beryllium, Dissolved	0.12J	ug/L	5.0	10/01/19 12:35	B
EPA 6010D	Cobalt, Dissolved	1.6J	ug/L	10.0	10/01/19 12:35	
EPA 6010D	Nickel, Dissolved	1.1J	ug/L	20.0	10/01/19 12:35	
EPA 6010D	Vanadium, Dissolved	6.8J	ug/L	15.0	10/01/19 12:35	
EPA 7470A	Mercury, Dissolved	0.18J	ug/L	0.20	09/27/19 14:06	
EPA 8260B	Carbon tetrachloride	82.3	ug/L	0.50	09/23/19 19:17	
EPA 8260B	Chloroform	2.7	ug/L	1.0	09/23/19 19:17	
SM 2320B	Alkalinity, Total as CaCO3	260	mg/L	5.0	09/26/19 13:12	
SM 2540C	Total Dissolved Solids	342	mg/L	10.0	09/25/19 14:45	
EPA 300.0	Chloride	4.6	mg/L	1.2	09/21/19 01:59	M1
EPA 300.0	Nitrate as N	1.8	mg/L	0.10	09/21/19 01:59	M1
EPA 300.0	Sulfate	7.1	mg/L	1.2	09/21/19 01:59	M1
EPA 353.2	Nitrogen, NO2 plus NO3	2.2	mg/L	0.50	09/26/19 11:07	
SM 5310C	Total Organic Carbon	1.1J	mg/L	2.0	09/29/19 12:21	
10492282003	MW6D-GW-091919					
EPA 6010D	Barium, Dissolved	7.9J	ug/L	10.0	10/01/19 12:37	
EPA 6010D	Cobalt, Dissolved	0.88J	ug/L	10.0	10/01/19 12:37	
EPA 6010D	Vanadium, Dissolved	6.1J	ug/L	15.0	10/01/19 12:37	
SM 2320B	Alkalinity, Total as CaCO3	171	mg/L	5.0	09/26/19 13:15	
SM 2540C	Total Dissolved Solids	218	mg/L	10.0	09/25/19 14:45	
EPA 300.0	Chloride	1.9	mg/L	1.2	09/21/19 03:06	
EPA 300.0	Nitrate as N	0.043J	mg/L	0.10	09/21/19 03:06	
EPA 300.0	Sulfate	5.1	mg/L	1.2	09/21/19 03:06	
EPA 410.4	Chemical Oxygen Demand	21.8J	mg/L	50.0	09/25/19 07:30	
SM 5310C	Total Organic Carbon	0.56J	mg/L	1.0	09/27/19 16:20	
10492282004	MW17D-GW-091919					
RSK-175	Ethene	10.8J	ug/L	13.0	09/26/19 13:27	J
EPA 6010D	Barium, Dissolved	61.4	ug/L	10.0	10/01/19 12:42	
EPA 6010D	Cobalt, Dissolved	1.4J	ug/L	10.0	10/01/19 12:42	
EPA 6010D	Molybdenum, Dissolved	5.5J	ug/L	15.0	10/01/19 12:42	
EPA 6010D	Nickel, Dissolved	1.3J	ug/L	20.0	10/01/19 12:42	
EPA 6010D	Vanadium, Dissolved	3.3J	ug/L	15.0	10/01/19 12:42	
EPA 6010D	Zinc, Dissolved	9.8J	ug/L	20.0	10/01/19 12:42	
SM 2320B	Alkalinity, Total as CaCO3	167	mg/L	5.0	09/26/19 13:19	
SM 2540C	Total Dissolved Solids	323	mg/L	10.0	09/25/19 14:45	
SM 4500-S-2 D	Sulfide, Total	0.0058J	mg/L	0.020	09/25/19 15:16	
EPA 300.0	Chloride	19.2	mg/L	1.2	09/21/19 03:22	
EPA 300.0	Nitrate as N	0.057J	mg/L	0.10	09/21/19 03:22	
EPA 300.0	Sulfate	53.8	mg/L	1.2	09/21/19 03:22	
EPA 353.2	Nitrogen, NO2 plus NO3	0.035J	mg/L	0.10	09/26/19 12:18	
EPA 410.4	Chemical Oxygen Demand	29.1J	mg/L	50.0	09/25/19 07:31	
SM 5310C	Total Organic Carbon	4.7	mg/L	1.0	09/27/19 16:33	
10492282005	WS5-GW-091919					
EPA 6010D	Barium, Dissolved	54.1	ug/L	10.0	10/01/19 12:44	
EPA 6010D	Beryllium, Dissolved	0.17J	ug/L	5.0	10/01/19 12:44	B

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10492282005	WS5-GW-091919					
EPA 6010D	Cobalt, Dissolved	1.5J	ug/L	10.0	10/01/19 12:44	
EPA 6010D	Copper, Dissolved	8.2J	ug/L	10.0	10/01/19 12:44	
EPA 6010D	Nickel, Dissolved	41.3	ug/L	20.0	10/01/19 12:44	
EPA 6010D	Vanadium, Dissolved	20.9	ug/L	15.0	10/01/19 12:44	
EPA 6010D	Zinc, Dissolved	45.9	ug/L	20.0	10/01/19 12:44	
EPA 8260B	Carbon tetrachloride	4.7	ug/L	0.50	09/23/19 23:15	
SM 2320B	Alkalinity, Total as CaCO3	171	mg/L	5.0	09/26/19 13:22	
SM 2540C	Total Dissolved Solids	224	mg/L	10.0	09/26/19 13:34	
EPA 300.0	Chloride	2.7	mg/L	1.2	09/21/19 03:39	
EPA 300.0	Nitrate as N	1.0	mg/L	0.10	09/21/19 03:39	
EPA 300.0	Sulfate	5.3	mg/L	1.2	09/21/19 03:39	
EPA 353.2	Nitrogen, NO2 plus NO3	1.4	mg/L	0.10	09/26/19 12:22	M1
SM 5310C	Total Organic Carbon	0.64J	mg/L	1.0	09/27/19 16:47	
10492282006	MW14D-GW-091919					
EPA 6010D	Barium, Dissolved	21.7	ug/L	10.0	10/01/19 12:49	
EPA 6010D	Cobalt, Dissolved	0.89J	ug/L	10.0	10/01/19 12:49	
EPA 6010D	Vanadium, Dissolved	6.6J	ug/L	15.0	10/01/19 12:49	
SM 2320B	Alkalinity, Total as CaCO3	142	mg/L	5.0	09/26/19 13:26	
SM 2540C	Total Dissolved Solids	189	mg/L	10.0	09/26/19 13:34	
EPA 300.0	Chloride	0.94J	mg/L	1.2	09/21/19 03:55	
EPA 300.0	Nitrate as N	0.083J	mg/L	0.10	09/21/19 03:55	
EPA 300.0	Sulfate	0.69J	mg/L	1.2	09/21/19 03:55	
EPA 353.2	Nitrogen, NO2 plus NO3	0.098J	mg/L	0.10	09/26/19 12:27	
SM 5310C	Total Organic Carbon	1.1J	mg/L	2.0	09/29/19 12:34	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 1352492

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): L1142385-01

P6: Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

- MS (Lab ID: R3454903-4)
- Methane

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 633710

B: Analyte was detected in the associated method blank.

- BLANK for HBN 633710 [MPRP/970 (Lab ID: 3416481)]
- Beryllium, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

6 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 634015

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3417682)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3417683)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3417684)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3417685)
 - 1,2-Dichloroethene (Total)
- MW14D-GW-091919 (Lab ID: 10492282006)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 04, 2019

Analyte Comments:

QC Batch: 634015

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MW17D-GW-091919 (Lab ID: 10492282004)
 - 1,2-Dichloroethene (Total)
- MW6D-GW-091919 (Lab ID: 10492282003)
 - 1,2-Dichloroethene (Total)
- MW6U-GW-091919 (Lab ID: 10492282002)
 - 1,2-Dichloroethene (Total)
- TB05-091919 (Lab ID: 10492282001)
 - 1,2-Dichloroethene (Total)
- WS5-GW-091919 (Lab ID: 10492282005)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3417682)
 - Dichlorofluoromethane
- LCS (Lab ID: 3417683)
 - Dichlorofluoromethane
- MS (Lab ID: 3417684)
 - Dichlorofluoromethane
- MSD (Lab ID: 3417685)
 - Dichlorofluoromethane
- MW14D-GW-091919 (Lab ID: 10492282006)
 - Dichlorofluoromethane
- MW17D-GW-091919 (Lab ID: 10492282004)
 - Dichlorofluoromethane
- MW6D-GW-091919 (Lab ID: 10492282003)
 - Dichlorofluoromethane
- MW6U-GW-091919 (Lab ID: 10492282002)
 - Dichlorofluoromethane
- TB05-091919 (Lab ID: 10492282001)
 - Dichlorofluoromethane
- WS5-GW-091919 (Lab ID: 10492282005)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 634759

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10491747032,10492279001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3421166)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 634182

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 3418518)
- Total Dissolved Solids

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 158705

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20122719001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 711142)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 633627

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10492282002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3415970)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3415971)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 634559

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10491655010,10491870001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3420090)
- Nitrogen, NO2 plus NO3

QC Batch: 634693

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10492282004,10492282005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3420885)
- Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 634693

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3420884)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3420885)
 - Nitrogen, NO2 plus NO3

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 04, 2019

General Information:

5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: TB05-091919 **Lab ID: 10492282001** Collected: 09/19/19 07:30 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 20:52	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 20:52	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 20:52	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 20:52	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 20:52	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 20:52	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 20:52	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 20:52	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 20:52	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 20:52	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 20:52	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 20:52	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 20:52	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 20:52	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 20:52	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 20:52	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 20:52	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 20:52	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 20:52	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 20:52	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 20:52	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 20:52	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 20:52	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 20:52	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 20:52	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 20:52	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 20:52	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 20:52	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 20:52	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 20:52	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 20:52	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 20:52	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 20:52	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 20:52	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 20:52	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 20:52	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 20:52	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 20:52	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 20:52	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 20:52	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 20:52	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 20:52	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 20:52	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 20:52	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 20:52	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 20:52	124-48-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Sample Project No.: 10492282

Sample: TB05-091919 **Lab ID: 10492282001** Collected: 09/19/19 07:30 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 20:52	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 20:52	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 20:52	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 20:52	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 20:52	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 20:52	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 20:52	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 20:52	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 20:52	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 20:52	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 20:52	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 20:52	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 20:52	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 20:52	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 20:52	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 20:52	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 20:52	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 20:52	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 20:52	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 20:52	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 20:52	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 20:52	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 20:52	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 20:52	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 20:52	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 20:52	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 20:52	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 20:52	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 20:52	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 20:52	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 20:52	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 20:52	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 20:52	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 20:52	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	75-136		1		09/23/19 20:52	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		09/23/19 20:52	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		09/23/19 20:52	460-00-4	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW6U-GW-091919 **Lab ID: 10492282002** Collected: 09/19/19 08:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:22	09/26/19 13:22	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:22	09/26/19 13:22	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:22	09/26/19 13:22	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/30/19 05:06	10/01/19 12:35	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/30/19 05:06	10/01/19 12:35	7440-38-2	
Barium, Dissolved	46.6	ug/L	10.0	0.60	1	09/30/19 05:06	10/01/19 12:35	7440-39-3	
Beryllium, Dissolved	0.12J	ug/L	5.0	0.12	1	09/30/19 05:06	10/01/19 12:35	7440-41-7	B
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/30/19 05:06	10/01/19 12:35	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/30/19 05:06	10/01/19 12:35	7440-47-3	
Cobalt, Dissolved	1.6J	ug/L	10.0	0.50	1	09/30/19 05:06	10/01/19 12:35	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	09/30/19 05:06	10/01/19 12:35	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/30/19 05:06	10/01/19 12:35	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	09/30/19 05:06	10/01/19 12:35	7439-98-7	
Nickel, Dissolved	1.1J	ug/L	20.0	1.1	1	09/30/19 05:06	10/01/19 12:35	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/30/19 05:06	10/01/19 12:35	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/30/19 05:06	10/01/19 12:35	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/30/19 05:06	10/01/19 12:35	7440-28-0	
Vanadium, Dissolved	6.8J	ug/L	15.0	0.43	1	09/30/19 05:06	10/01/19 12:35	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	09/30/19 05:06	10/01/19 12:35	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	0.18J	ug/L	0.20	0.093	1	09/27/19 10:06	09/27/19 14:06	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 19:17	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 19:17	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 19:17	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 19:17	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 19:17	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 19:17	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 19:17	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 19:17	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 19:17	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 19:17	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 19:17	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 19:17	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 19:17	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 19:17	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 19:17	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 19:17	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 19:17	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 19:17	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 19:17	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 19:17	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: **MW6U-GW-091919** Lab ID: **10492282002** Collected: 09/19/19 08:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 19:17	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 19:17	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 19:17	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 19:17	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 19:17	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 19:17	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 19:17	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 19:17	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 19:17	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 19:17	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 19:17	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 19:17	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 19:17	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 19:17	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 19:17	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 19:17	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 19:17	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 19:17	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 19:17	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 19:17	75-15-0	
Carbon tetrachloride	82.3	ug/L	0.50	0.19	1		09/23/19 19:17	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 19:17	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 19:17	75-00-3	
Chloroform	2.7	ug/L	1.0	0.45	1		09/23/19 19:17	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 19:17	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 19:17	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 19:17	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 19:17	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 19:17	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 19:17	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 19:17	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 19:17	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 19:17	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 19:17	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 19:17	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 19:17	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 19:17	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 19:17	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 19:17	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 19:17	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 19:17	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 19:17	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 19:17	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 19:17	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 19:17	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 19:17	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: MW6U-GW-091919 **Lab ID: 10492282002** Collected: 09/19/19 08:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 19:17	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 19:17	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 19:17	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 19:17	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 19:17	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 19:17	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 19:17	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 19:17	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 19:17	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 19:17	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 19:17	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 19:17	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 19:17	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 19:17	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	75-136		1		09/23/19 19:17	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		09/23/19 19:17	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		09/23/19 19:17	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	260	mg/L	5.0	2.0	1		09/26/19 13:12		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	342	mg/L	10.0	5.0	1		09/25/19 14:45		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/25/19 15:15	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	4.6	mg/L	1.2	0.12	1		09/21/19 01:59	16887-00-6	M1
Nitrate as N	1.8	mg/L	0.10	0.012	1		09/21/19 01:59	14797-55-8	M1
Sulfate	7.1	mg/L	1.2	0.28	1		09/21/19 01:59	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	2.2	mg/L	0.50	0.088	5		09/26/19 11:07		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 11:07	09/25/19 07:30		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.1J	mg/L	2.0	0.79	2		09/29/19 12:21	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW6D-GW-091919 **Lab ID: 10492282003** Collected: 09/19/19 09:50 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:25	09/26/19 13:25	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:25	09/26/19 13:25	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:25	09/26/19 13:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/30/19 05:06	10/01/19 12:37	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/30/19 05:06	10/01/19 12:37	7440-38-2	
Barium, Dissolved	7.9J	ug/L	10.0	0.60	1	09/30/19 05:06	10/01/19 12:37	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	09/30/19 05:06	10/01/19 12:37	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/30/19 05:06	10/01/19 12:37	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/30/19 05:06	10/01/19 12:37	7440-47-3	
Cobalt, Dissolved	0.88J	ug/L	10.0	0.50	1	09/30/19 05:06	10/01/19 12:37	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	09/30/19 05:06	10/01/19 12:37	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/30/19 05:06	10/01/19 12:37	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	09/30/19 05:06	10/01/19 12:37	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	09/30/19 05:06	10/01/19 12:37	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/30/19 05:06	10/01/19 12:37	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/30/19 05:06	10/01/19 12:37	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/30/19 05:06	10/01/19 12:37	7440-28-0	
Vanadium, Dissolved	6.1J	ug/L	15.0	0.43	1	09/30/19 05:06	10/01/19 12:37	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	09/30/19 05:06	10/01/19 12:37	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 10:06	09/27/19 14:08	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 22:27	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 22:27	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 22:27	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 22:27	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 22:27	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 22:27	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:27	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:27	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 22:27	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 22:27	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:27	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:27	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 22:27	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 22:27	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 22:27	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 22:27	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 22:27	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 22:27	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 22:27	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:27	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: MW6D-GW-091919 **Lab ID: 10492282003** Collected: 09/19/19 09:50 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 22:27	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:27	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 22:27	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 22:27	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 22:27	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 22:27	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:27	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 22:27	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 22:27	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 22:27	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 22:27	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 22:27	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 22:27	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 22:27	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 22:27	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 22:27	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 22:27	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 22:27	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 22:27	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 22:27	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 22:27	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:27	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 22:27	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 22:27	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 22:27	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 22:27	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 22:27	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 22:27	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 22:27	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 22:27	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 22:27	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 22:27	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 22:27	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 22:27	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 22:27	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 22:27	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 22:27	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 22:27	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:27	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 22:27	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 22:27	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 22:27	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 22:27	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 22:27	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 22:27	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 22:27	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: MW6D-GW-091919 **Lab ID: 10492282003** Collected: 09/19/19 09:50 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:27	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:27	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 22:27	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 22:27	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 22:27	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:27	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:27	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:27	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 22:27	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 22:27	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:27	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 22:27	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 22:27	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 22:27	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	75-136		1		09/23/19 22:27	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		09/23/19 22:27	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125		1		09/23/19 22:27	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	171	mg/L	5.0	2.0	1		09/26/19 13:15		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	218	mg/L	10.0	5.0	1		09/25/19 14:45		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/25/19 15:16	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.9	mg/L	1.2	0.12	1		09/21/19 03:06	16887-00-6	
Nitrate as N	0.043J	mg/L	0.10	0.012	1		09/21/19 03:06	14797-55-8	
Sulfate	5.1	mg/L	1.2	0.28	1		09/21/19 03:06	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		09/26/19 10:56		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	21.8J	mg/L	50.0	17.0	1	09/24/19 11:07	09/25/19 07:30		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.56J	mg/L	1.0	0.39	1		09/27/19 16:20	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW17D-GW-091919 **Lab ID: 10492282004** Collected: 09/19/19 10:30 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:27	09/26/19 13:27	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:27	09/26/19 13:27	74-84-0	
Ethene	10.8J	ug/L	13.0	4.26	1	09/26/19 13:27	09/26/19 13:27	74-85-1	J
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/30/19 05:06	10/01/19 12:42	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/30/19 05:06	10/01/19 12:42	7440-38-2	
Barium, Dissolved	61.4	ug/L	10.0	0.60	1	09/30/19 05:06	10/01/19 12:42	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	09/30/19 05:06	10/01/19 12:42	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/30/19 05:06	10/01/19 12:42	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/30/19 05:06	10/01/19 12:42	7440-47-3	
Cobalt, Dissolved	1.4J	ug/L	10.0	0.50	1	09/30/19 05:06	10/01/19 12:42	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	09/30/19 05:06	10/01/19 12:42	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/30/19 05:06	10/01/19 12:42	7439-92-1	
Molybdenum, Dissolved	5.5J	ug/L	15.0	3.8	1	09/30/19 05:06	10/01/19 12:42	7439-98-7	
Nickel, Dissolved	1.3J	ug/L	20.0	1.1	1	09/30/19 05:06	10/01/19 12:42	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/30/19 05:06	10/01/19 12:42	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/30/19 05:06	10/01/19 12:42	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/30/19 05:06	10/01/19 12:42	7440-28-0	
Vanadium, Dissolved	3.3J	ug/L	15.0	0.43	1	09/30/19 05:06	10/01/19 12:42	7440-62-2	
Zinc, Dissolved	9.8J	ug/L	20.0	6.3	1	09/30/19 05:06	10/01/19 12:42	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 10:06	09/27/19 14:10	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 22:51	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 22:51	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 22:51	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 22:51	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 22:51	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 22:51	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:51	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:51	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 22:51	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 22:51	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:51	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:51	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 22:51	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 22:51	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 22:51	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 22:51	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 22:51	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 22:51	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 22:51	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:51	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW17D-GW-091919 Lab ID: 10492282004 Collected: 09/19/19 10:30 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 22:51	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:51	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 22:51	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 22:51	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 22:51	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 22:51	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:51	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 22:51	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 22:51	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 22:51	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 22:51	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 22:51	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 22:51	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 22:51	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 22:51	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 22:51	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 22:51	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 22:51	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 22:51	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 22:51	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 22:51	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:51	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 22:51	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 22:51	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 22:51	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 22:51	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 22:51	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 22:51	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 22:51	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 22:51	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 22:51	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 22:51	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 22:51	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 22:51	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 22:51	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 22:51	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 22:51	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 22:51	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 22:51	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 22:51	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 22:51	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 22:51	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 22:51	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 22:51	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 22:51	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 22:51	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: MW17D-GW-091919 **Lab ID: 10492282004** Collected: 09/19/19 10:30 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:51	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 22:51	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 22:51	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 22:51	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 22:51	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 22:51	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:51	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:51	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 22:51	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 22:51	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 22:51	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 22:51	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 22:51	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 22:51	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	75-136		1		09/23/19 22:51	17060-07-0	
Toluene-d8 (S)	103	%	75-125		1		09/23/19 22:51	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		09/23/19 22:51	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	167	mg/L	5.0	2.0	1		09/26/19 13:19		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	323	mg/L	10.0	5.0	1		09/25/19 14:45		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	0.0058J	mg/L	0.020	0.0054	1		09/25/19 15:16	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	19.2	mg/L	1.2	0.12	1		09/21/19 03:22	16887-00-6	
Nitrate as N	0.057J	mg/L	0.10	0.012	1		09/21/19 03:22	14797-55-8	
Sulfate	53.8	mg/L	1.2	0.28	1		09/21/19 03:22	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.035J	mg/L	0.10	0.018	1		09/26/19 12:18		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	29.1J	mg/L	50.0	17.0	1	09/24/19 11:07	09/25/19 07:31		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	4.7	mg/L	1.0	0.39	1		09/27/19 16:33	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: WS5-GW-091919 **Lab ID: 10492282005** Collected: 09/19/19 10:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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VOA (GC) RSK175

Analytical Method: RSK-175 Preparation Method: RSK175

Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:36	09/26/19 13:36	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:36	09/26/19 13:36	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:36	09/26/19 13:36	74-85-1	

6010D MET ICP, Dissolved

Analytical Method: EPA 6010D Preparation Method: EPA 3010

Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/30/19 05:06	10/01/19 12:44	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/30/19 05:06	10/01/19 12:44	7440-38-2	
Barium, Dissolved	54.1	ug/L	10.0	0.60	1	09/30/19 05:06	10/01/19 12:44	7440-39-3	
Beryllium, Dissolved	0.17J	ug/L	5.0	0.12	1	09/30/19 05:06	10/01/19 12:44	7440-41-7	B
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/30/19 05:06	10/01/19 12:44	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/30/19 05:06	10/01/19 12:44	7440-47-3	
Cobalt, Dissolved	1.5J	ug/L	10.0	0.50	1	09/30/19 05:06	10/01/19 12:44	7440-48-4	
Copper, Dissolved	8.2J	ug/L	10.0	1.2	1	09/30/19 05:06	10/01/19 12:44	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/30/19 05:06	10/01/19 12:44	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	09/30/19 05:06	10/01/19 12:44	7439-98-7	
Nickel, Dissolved	41.3	ug/L	20.0	1.1	1	09/30/19 05:06	10/01/19 12:44	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/30/19 05:06	10/01/19 12:44	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/30/19 05:06	10/01/19 12:44	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/30/19 05:06	10/01/19 12:44	7440-28-0	
Vanadium, Dissolved	20.9	ug/L	15.0	0.43	1	09/30/19 05:06	10/01/19 12:44	7440-62-2	
Zinc, Dissolved	45.9	ug/L	20.0	6.3	1	09/30/19 05:06	10/01/19 12:44	7440-66-6	

7470A Mercury, Dissolved

Analytical Method: EPA 7470A Preparation Method: EPA 7470A

Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 10:06	09/27/19 14:12	7439-97-6	
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8260B MSV Low Level

Analytical Method: EPA 8260B

1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 23:15	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 23:15	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 23:15	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 23:15	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 23:15	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 23:15	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:15	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:15	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 23:15	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 23:15	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:15	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:15	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 23:15	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 23:15	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 23:15	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 23:15	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 23:15	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 23:15	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 23:15	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:15	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: **WS5-GW-091919** Lab ID: **10492282005** Collected: 09/19/19 10:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 23:15	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:15	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 23:15	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 23:15	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 23:15	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 23:15	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:15	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 23:15	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 23:15	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 23:15	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 23:15	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 23:15	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 23:15	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 23:15	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 23:15	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 23:15	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 23:15	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 23:15	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 23:15	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 23:15	75-15-0	
Carbon tetrachloride	4.7	ug/L	0.50	0.19	1		09/23/19 23:15	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:15	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 23:15	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 23:15	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 23:15	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 23:15	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 23:15	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 23:15	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 23:15	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 23:15	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 23:15	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 23:15	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 23:15	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 23:15	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 23:15	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 23:15	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 23:15	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 23:15	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:15	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 23:15	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 23:15	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 23:15	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 23:15	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 23:15	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 23:15	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 23:15	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: WS5-GW-091919 **Lab ID: 10492282005** Collected: 09/19/19 10:55 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:15	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:15	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 23:15	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 23:15	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 23:15	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:15	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:15	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:15	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 23:15	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 23:15	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:15	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 23:15	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 23:15	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 23:15	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	75-136		1		09/23/19 23:15	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		09/23/19 23:15	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		09/23/19 23:15	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	171	mg/L	5.0	2.0	1		09/26/19 13:22		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	224	mg/L	10.0	5.0	1		09/26/19 13:34		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/25/19 15:17	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.7	mg/L	1.2	0.12	1		09/21/19 03:39	16887-00-6	
Nitrate as N	1.0	mg/L	0.10	0.012	1		09/21/19 03:39	14797-55-8	
Sulfate	5.3	mg/L	1.2	0.28	1		09/21/19 03:39	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	1.4	mg/L	0.10	0.018	1		09/26/19 12:22		M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 11:07	09/25/19 07:31		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.64J	mg/L	1.0	0.39	1		09/27/19 16:47	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW14D-GW-091919 Lab ID: 10492282006 Collected: 09/19/19 15:00 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:40	09/26/19 13:40	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:40	09/26/19 13:40	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:40	09/26/19 13:40	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	09/30/19 05:06	10/01/19 12:49	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	09/30/19 05:06	10/01/19 12:49	7440-38-2	
Barium, Dissolved	21.7	ug/L	10.0	0.60	1	09/30/19 05:06	10/01/19 12:49	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	09/30/19 05:06	10/01/19 12:49	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	09/30/19 05:06	10/01/19 12:49	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	09/30/19 05:06	10/01/19 12:49	7440-47-3	
Cobalt, Dissolved	0.89J	ug/L	10.0	0.50	1	09/30/19 05:06	10/01/19 12:49	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	09/30/19 05:06	10/01/19 12:49	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	09/30/19 05:06	10/01/19 12:49	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	09/30/19 05:06	10/01/19 12:49	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	09/30/19 05:06	10/01/19 12:49	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	09/30/19 05:06	10/01/19 12:49	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	09/30/19 05:06	10/01/19 12:49	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	09/30/19 05:06	10/01/19 12:49	7440-28-0	
Vanadium, Dissolved	6.6J	ug/L	15.0	0.43	1	09/30/19 05:06	10/01/19 12:49	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	09/30/19 05:06	10/01/19 12:49	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 10:06	09/27/19 14:15	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 23:39	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 23:39	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 23:39	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 23:39	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 23:39	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 23:39	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:39	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:39	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 23:39	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 23:39	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:39	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:39	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 23:39	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 23:39	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 23:39	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 23:39	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 23:39	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 23:39	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 23:39	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:39	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Project No.: 10492282

Sample: **MW14D-GW-091919** Lab ID: **10492282006** Collected: 09/19/19 15:00 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 23:39	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:39	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 23:39	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 23:39	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 23:39	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 23:39	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:39	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 23:39	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 23:39	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 23:39	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 23:39	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 23:39	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 23:39	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 23:39	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 23:39	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 23:39	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 23:39	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 23:39	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 23:39	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 23:39	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 23:39	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:39	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 23:39	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 23:39	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 23:39	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 23:39	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 23:39	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 23:39	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 23:39	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 23:39	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 23:39	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 23:39	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 23:39	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 23:39	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 23:39	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 23:39	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 23:39	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 23:39	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 23:39	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 23:39	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 23:39	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 23:39	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 23:39	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 23:39	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 23:39	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 23:39	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Sample: MW14D-GW-091919 **Lab ID: 10492282006** Collected: 09/19/19 15:00 Received: 09/20/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:39	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 23:39	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 23:39	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 23:39	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 23:39	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 23:39	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:39	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:39	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 23:39	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 23:39	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 23:39	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 23:39	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 23:39	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 23:39	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	75-136		1		09/23/19 23:39	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		09/23/19 23:39	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		09/23/19 23:39	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	142	mg/L	5.0	2.0	1		09/26/19 13:26		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	189	mg/L	10.0	5.0	1		09/26/19 13:34		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/25/19 15:17	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	0.94J	mg/L	1.2	0.12	1		09/21/19 03:55	16887-00-6	
Nitrate as N	0.083J	mg/L	0.10	0.012	1		09/21/19 03:55	14797-55-8	
Sulfate	0.69J	mg/L	1.2	0.28	1		09/21/19 03:55	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.098J	mg/L	0.10	0.018	1		09/26/19 12:27		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 11:07	09/25/19 07:32		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.1J	mg/L	2.0	0.79	2		09/29/19 12:34	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 1352492 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: R3454903-1 Matrix: Water
 Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	09/26/19 11:43	
Ethane	ug/L	<4.07	13.0	4.07	09/26/19 11:43	
Ethene	ug/L	<4.26	13.0	4.26	09/26/19 11:43	

LABORATORY CONTROL SAMPLE & LCSD: R3454903-6 R3454903-7

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	73.0	76.4	108	113	85.0-115	4.65	20	
Ethane	ug/L	129	119	123	91.9	95.1	85.0-115	3.42	20	
Ethene	ug/L	127	117	121	92.4	95.6	85.0-115	3.40	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3454903-4 R3454903-5

Parameter	Units	L1142385-01 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	948	67.8	67.8	987	1020	58.0	101	85.0-115	2.94	20	P6
Ethane	ug/L	99.3	129	129	212	214	87.1	88.7	85.0-115	0.920	20	
Ethene	ug/L	ND	127	127	115	111	90.6	87.5	85.0-115	3.47	20	

SAMPLE DUPLICATE: R3454903-2

Parameter	Units	L1141674-16 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	541	561	3.52	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3454903-3

Parameter	Units	10492282004 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	10.8	10.4J	3.89	20 J	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 633731 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3416567 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	09/27/19 13:13	

LABORATORY CONTROL SAMPLE: 3416568

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.3	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416569 3416570

Parameter	Units	10492090005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.1	5.2	103	104	80-120	1	20	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 633710 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3416481 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	10/01/19 11:54	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	10/01/19 11:54	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	10/01/19 11:54	
Beryllium, Dissolved	ug/L	0.17J	5.0	0.12	10/01/19 11:54	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	10/01/19 11:54	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	10/01/19 11:54	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	10/01/19 11:54	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	10/01/19 11:54	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	10/01/19 11:54	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	10/01/19 11:54	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	10/01/19 11:54	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	10/01/19 11:54	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	10/01/19 11:54	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	10/01/19 11:54	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	10/01/19 11:54	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	10/01/19 11:54	

LABORATORY CONTROL SAMPLE: 3416482

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	998	100	80-120	
Arsenic, Dissolved	ug/L	1000	1040	104	80-120	
Barium, Dissolved	ug/L	1000	1040	104	80-120	
Beryllium, Dissolved	ug/L	1000	1060	106	80-120	
Cadmium, Dissolved	ug/L	1000	1050	105	80-120	
Chromium, Dissolved	ug/L	1000	1040	104	80-120	
Cobalt, Dissolved	ug/L	1000	1030	103	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1040	104	80-120	
Molybdenum, Dissolved	ug/L	1000	1010	101	80-120	
Nickel, Dissolved	ug/L	1000	1040	104	80-120	
Selenium, Dissolved	ug/L	1000	1060	106	80-120	
Silver, Dissolved	ug/L	500	523	105	80-120	
Thallium, Dissolved	ug/L	1000	1020	102	80-120	
Vanadium, Dissolved	ug/L	1000	1030	103	80-120	
Zinc, Dissolved	ug/L	1000	1060	106	80-120	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Parameter	Units	10492090005		3416483		3416484		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Antimony, Dissolved	ug/L	<7.0	1000	1000	1060	1060	106	106	75-125	1	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1090	1100	109	110	75-125	1	20			
Barium, Dissolved	ug/L	31.2	1000	1000	1120	1120	108	109	75-125	1	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1110	1110	111	111	75-125	1	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1080	1090	108	109	75-125	0	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	1080	1090	108	109	75-125	0	20			
Cobalt, Dissolved	ug/L	1.8J	1000	1000	1060	1060	106	106	75-125	1	20			
Copper, Dissolved	ug/L	119	1000	1000	1170	1180	105	106	75-125	0	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	1070	1080	107	108	75-125	1	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1070	1070	107	107	75-125	0	20			
Nickel, Dissolved	ug/L	10.7J	1000	1000	1070	1080	106	106	75-125	1	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1100	1110	110	111	75-125	0	20			
Silver, Dissolved	ug/L	<0.40	500	500	547	549	109	110	75-125	0	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	1040	1050	104	104	75-125	0	20			
Vanadium, Dissolved	ug/L	4.0J	1000	1000	1080	1090	108	108	75-125	1	20			
Zinc, Dissolved	ug/L	21.7	1000	1000	1100	1110	108	108	75-125	1	20			

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 634015 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10492282001, 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3417682 Matrix: Water
Associated Lab Samples: 10492282001, 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	09/23/19 17:18	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	09/23/19 17:18	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	09/23/19 17:18	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	09/23/19 17:18	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	09/23/19 17:18	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	09/23/19 17:18	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	09/23/19 17:18	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	09/23/19 17:18	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	09/23/19 17:18	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	200	16.3	09/23/19 17:18	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	09/23/19 17:18	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	09/23/19 17:18	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	09/23/19 17:18	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
2-Hexanone	ug/L	<0.88	5.0	0.88	09/23/19 17:18	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	09/23/19 17:18	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	09/23/19 17:18	
Acetone	ug/L	<9.2	20.0	9.2	09/23/19 17:18	
Acrolein	ug/L	<1.2	10.0	1.2	09/23/19 17:18	
Acrylonitrile	ug/L	<0.91	10.0	0.91	09/23/19 17:18	
Benzene	ug/L	<0.10	0.50	0.10	09/23/19 17:18	
Bromobenzene	ug/L	<0.21	0.50	0.21	09/23/19 17:18	
Bromochloromethane	ug/L	<0.27	1.0	0.27	09/23/19 17:18	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	09/23/19 17:18	
Bromoform	ug/L	<0.80	4.0	0.80	09/23/19 17:18	
Bromomethane	ug/L	<1.8	4.0	1.8	09/23/19 17:18	
Carbon disulfide	ug/L	<0.078	1.0	0.078	09/23/19 17:18	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	09/23/19 17:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

METHOD BLANK: 3417682

Matrix: Water

Associated Lab Samples: 10492282001, 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
Chloroethane	ug/L	<0.49	1.0	0.49	09/23/19 17:18	
Chloroform	ug/L	<0.45	1.0	0.45	09/23/19 17:18	
Chloromethane	ug/L	<0.16	4.0	0.16	09/23/19 17:18	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
Dibromomethane	ug/L	<0.16	1.0	0.16	09/23/19 17:18	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	09/23/19 17:18	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	09/23/19 17:18	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	09/23/19 17:18	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
Ethylbenzene	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	09/23/19 17:18	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	09/23/19 17:18	
m&p-Xylene	ug/L	<0.31	1.0	0.31	09/23/19 17:18	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
Methylene Chloride	ug/L	<0.98	4.0	0.98	09/23/19 17:18	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	09/23/19 17:18	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	09/23/19 17:18	
Naphthalene	ug/L	<0.48	1.0	0.48	09/23/19 17:18	
o-Xylene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
Styrene	ug/L	<0.19	1.0	0.19	09/23/19 17:18	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	09/23/19 17:18	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	09/23/19 17:18	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	09/23/19 17:18	
Toluene	ug/L	<0.083	0.50	0.083	09/23/19 17:18	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	09/23/19 17:18	
Trichloroethene	ug/L	<0.15	0.40	0.15	09/23/19 17:18	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	09/23/19 17:18	
Vinyl acetate	ug/L	<1.1	10.0	1.1	09/23/19 17:18	
Vinyl chloride	ug/L	<0.092	0.20	0.092	09/23/19 17:18	
Xylene (Total)	ug/L	<0.31	1.5	0.31	09/23/19 17:18	
1,2-Dichloroethane-d4 (S)	%	100	75-136		09/23/19 17:18	
4-Bromofluorobenzene (S)	%	96	75-125		09/23/19 17:18	
Toluene-d8 (S)	%	104	75-125		09/23/19 17:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

LABORATORY CONTROL SAMPLE: 3417683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	19.6	98	68-141	
1,1,1-Trichloroethane	ug/L	20	19.3	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	20.1	100	73-125	
1,1,2-Trichloroethane	ug/L	20	20.3	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.1	95	69-132	
1,1-Dichloroethane	ug/L	20	17.7	88	73-125	
1,1-Dichloroethene	ug/L	20	17.3	87	71-126	
1,1-Dichloropropene	ug/L	20	18.0	90	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.6	93	72-126	
1,2,3-Trichloropropane	ug/L	20	19.9	99	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.4	87	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.8	99	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	51.4	103	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.6	98	75-129	
1,2-Dichlorobenzene	ug/L	20	19.5	98	75-129	
1,2-Dichloroethane	ug/L	20	18.6	93	75-125	
1,2-Dichloroethene (Total)	ug/L	40	35.3	88	74-125	N2
1,2-Dichloropropane	ug/L	20	17.4	87	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.9	100	75-127	
1,3-Dichlorobenzene	ug/L	20	19.9	100	75-126	
1,3-Dichloropropane	ug/L	20	19.4	97	75-125	
1,4-Dichlorobenzene	ug/L	20	19.1	95	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	454	113	72-129	
2,2,4-Trimethylpentane	ug/L	20	17.1	86	72-128	
2,2-Dichloropropane	ug/L	20	17.7	89	65-138	
2-Butanone (MEK)	ug/L	100	95.4	95	59-144	
2-Chlorotoluene	ug/L	20	18.9	95	75-127	
2-Hexanone	ug/L	100	102	102	73-134	
4-Chlorotoluene	ug/L	20	19.6	98	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	62-141	
Acetone	ug/L	100	109	109	60-137	
Acrolein	ug/L	200	211	105	60-141	
Acrylonitrile	ug/L	200	179	90	75-129	
Benzene	ug/L	20	18.2	91	73-125	
Bromobenzene	ug/L	20	19.4	97	73-125	
Bromochloromethane	ug/L	20	19.6	98	75-135	
Bromodichloromethane	ug/L	20	18.1	90	75-125	
Bromoform	ug/L	20	20.6	103	67-136	
Bromomethane	ug/L	20	15.0	75	30-150	
Carbon disulfide	ug/L	20	14.4	72	47-137	
Carbon tetrachloride	ug/L	20	19.9	99	75-125	
Chlorobenzene	ug/L	20	18.5	92	75-125	
Chloroethane	ug/L	20	18.7	93	63-136	
Chloroform	ug/L	20	18.0	90	73-128	
Chloromethane	ug/L	20	16.5	83	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.3	91	75-125	
cis-1,3-Dichloropropene	ug/L	20	18.7	93	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

LABORATORY CONTROL SAMPLE: 3417683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.7	108	75-125	
Dibromomethane	ug/L	20	22.8	114	75-125	
Dichlorodifluoromethane	ug/L	20	17.9	90	63-132	
Dichlorofluoromethane	ug/L	20	18.3	92	68-127	
Diisopropyl ether	ug/L	20	17.0	85	71-131	
Ethyl-tert-butyl ether	ug/L	20	15.4	77	75-125	
Ethylbenzene	ug/L	20	19.1	95	75-125	
Hexachloro-1,3-butadiene	ug/L	20	18.7	94	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.5	97	75-125	
m&p-Xylene	ug/L	40	38.3	96	75-126	
Methyl-tert-butyl ether	ug/L	20	16.4	82	75-125	
Methylene Chloride	ug/L	20	17.8	89	70-125	
n-Butylbenzene	ug/L	20	20.1	101	75-126	
n-Propylbenzene	ug/L	20	19.9	99	73-127	
Naphthalene	ug/L	20	16.5	82	63-128	
o-Xylene	ug/L	20	19.4	97	75-128	
p-Isopropyltoluene	ug/L	20	20.1	101	75-125	
sec-Butylbenzene	ug/L	20	21.3	107	75-126	
Styrene	ug/L	20	20.2	101	75-125	
tert-Amylmethyl ether	ug/L	20	15.9	80	75-125	
tert-Butyl Alcohol	ug/L	200	202	101	75-130	
tert-Butylbenzene	ug/L	20	20.6	103	75-131	
Tetrachloroethene	ug/L	20	19.9	99	74-125	
Tetrahydrofuran	ug/L	200	191	95	64-138	
Toluene	ug/L	20	18.5	93	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.0	85	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.5	103	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.0	88	60-127	
Trichloroethene	ug/L	20	19.4	97	75-127	
Trichlorofluoromethane	ug/L	20	17.8	89	72-133	
Vinyl acetate	ug/L	20	18.3	92	61-129	
Vinyl chloride	ug/L	20	17.2	86	75-128	
Xylene (Total)	ug/L	60	57.7	96	75-125	
1,2-Dichloroethane-d4 (S)	%			101	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3417684 3417685

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492282002 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	18.4	19.1	92	96	75-140	4	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	18.9	18.8	95	94	74-136	1	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	18.3	19.7	92	98	66-134	7	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	19.1	20.1	96	100	75-126	5	30	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3417684		3417685								
Parameter	Units	10492282002	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	19.1	19.4	95	97	65-146	2	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	16.4	16.3	82	82	68-132	1	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	17.4	16.7	87	83	66-139	4	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	18.3	17.9	91	89	67-134	2	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	19.0	20.0	95	100	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	18.1	19.2	91	96	69-128	6	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	17.8	17.7	89	88	65-140	1	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.1	20.3	95	101	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	45.0	50.3	90	101	54-138	11	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	17.9	18.6	89	93	68-125	4	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	18.0	19.4	90	97	74-136	8	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	17.1	16.9	85	85	68-125	1	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	33.2	32.9	83	82	71-126	1	30	N2
1,2-Dichloropropane	ug/L	<0.16	20	20	16.7	16.6	83	83	67-125	0	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.5	20.4	97	102	68-137	5	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	18.9	19.9	95	99	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	17.8	18.1	89	91	71-125	2	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	18.4	18.9	92	95	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	400	400	347	362	87	90	68-125	4	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.0	17.0	100	85	54-129	16	30	
2,2-Dichloropropane	ug/L	<0.17	20	20	17.6	18.3	88	91	69-139	4	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	74.5	83.9	74	84	54-144	12	30	
2-Chlorotoluene	ug/L	<0.16	20	20	18.2	19.8	91	99	75-134	8	30	
2-Hexanone	ug/L	<0.88	100	100	82.2	93.7	82	94	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	20	20	18.5	19.5	92	98	72-133	5	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	88.1	98.7	88	99	60-129	11	30	
Acetone	ug/L	<9.2	100	100	71.7	74.4	72	74	62-132	4	30	
Acrolein	ug/L	<1.2	200	200	208	227	104	114	30-150	9	30	
Acrylonitrile	ug/L	<0.91	200	200	154	167	77	84	68-125	9	30	
Benzene	ug/L	<0.10	20	20	16.8	16.5	84	83	68-125	2	30	
Bromobenzene	ug/L	<0.21	20	20	18.2	18.9	91	94	73-126	3	30	
Bromochloromethane	ug/L	<0.27	20	20	18.0	18.0	90	90	66-143	0	30	
Bromodichloromethane	ug/L	<0.22	20	20	17.4	17.1	87	86	74-125	1	30	
Bromoform	ug/L	<0.80	20	20	18.9	20.2	95	101	64-134	7	30	
Bromomethane	ug/L	<1.8	20	20	15.4	15.9	77	79	30-150	3	30	
Carbon disulfide	ug/L	<0.078	20	20	15.2	13.9	76	70	43-147	9	30	
Carbon tetrachloride	ug/L	82.3	20	20	106	107	118	125	71-143	1	30	
Chlorobenzene	ug/L	<0.17	20	20	17.2	17.9	86	90	75-125	4	30	
Chloroethane	ug/L	<0.49	20	20	18.3	17.8	91	89	75-129	3	30	
Chloroform	ug/L	2.7	20	20	19.3	19.3	83	83	66-132	0	30	
Chloromethane	ug/L	<0.16	20	20	16.3	13.1	81	65	53-137	22	30	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	16.6	16.8	83	84	67-133	1	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	16.5	16.4	83	82	66-125	1	30	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Parameter	Units	3417684		3417685		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10492282002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	19.6	20.3	98	101	62-132	4	30		
Dibromomethane	ug/L	<0.16	20	20	20.4	18.4	102	92	67-125	10	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	19.0	18.6	95	93	71-142	2	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	19.3	18.7	96	94	70-131	3	30		
Diisopropyl ether	ug/L	<0.13	20	20	15.2	15.7	76	79	63-131	4	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	13.9	14.3	69	72	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	18.0	19.0	90	95	74-126	6	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	21.2	18.3	106	91	68-143	15	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	18.5	20.2	93	101	74-130	9	30		
m&p-Xylene	ug/L	<0.31	40	40	36.7	39.0	92	98	69-132	6	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	15.2	15.8	76	79	65-131	4	30		
Methylene Chloride	ug/L	<0.98	20	20	16.8	16.9	84	84	57-125	0	30		
n-Butylbenzene	ug/L	<0.24	20	20	21.0	20.2	105	101	71-131	4	30		
n-Propylbenzene	ug/L	<0.10	20	20	19.9	20.6	100	103	67-138	4	30		
Naphthalene	ug/L	<0.48	20	20	15.3	17.5	77	87	60-130	13	30		
o-Xylene	ug/L	<0.16	20	20	18.6	19.4	93	97	69-131	4	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	20.8	20.5	104	103	72-133	1	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.7	21.7	108	109	73-134	0	30		
Styrene	ug/L	<0.19	20	20	18.8	18.9	94	94	72-125	1	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	14.8	15.2	74	76	67-125	3	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	164	175	82	87	64-137	6	30		
tert-Butylbenzene	ug/L	<0.15	20	20	20.6	21.1	103	105	70-143	2	30		
Tetrachloroethene	ug/L	<0.17	20	20	19.2	20.2	96	101	72-129	5	30		
Tetrahydrofuran	ug/L	<2.2	200	200	167	183	83	91	66-128	9	30		
Toluene	ug/L	<0.083	20	20	17.7	17.8	88	89	73-125	1	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	16.6	16.1	83	81	62-137	3	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.6	19.3	98	97	61-136	1	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	40.8	42.2	82	84	45-128	3	30		
Trichloroethene	ug/L	<0.15	20	20	18.2	18.4	91	92	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	19.4	19.2	97	96	75-139	1	30		
Vinyl acetate	ug/L	<1.1	20	20	16.7	17.0	83	85	51-135	2	30		
Vinyl chloride	ug/L	<0.092	20	20	18.4	17.8	92	89	68-146	3	30		
Xylene (Total)	ug/L	<0.31	60	60	55.3	58.4	92	97	67-137	5	30		
1,2-Dichloroethane-d4 (S)	%						101	102	75-136				
4-Bromofluorobenzene (S)	%						96	95	75-125				
Toluene-d8 (S)	%						99	100	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 634759 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3421161 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	09/26/19 11:59	

LABORATORY CONTROL SAMPLE & LCSD: 3421162 3421163

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	41.6	42.1	104	105	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3421164 3421165

Parameter	Units	10491747032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	95.2	40	40	136	137	102	105	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3421166 3421167

Parameter	Units	10492279001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	933	40	40	992	980	148	119	80-120	1	20	M1

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 634182

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10492282002, 10492282003, 10492282004

METHOD BLANK: 3418516

Matrix: Water

Associated Lab Samples: 10492282002, 10492282003, 10492282004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	09/25/19 14:45	

LABORATORY CONTROL SAMPLE: 3418517

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 3418518

Parameter	Units	10492209001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1710	1540	10	5	D6

SAMPLE DUPLICATE: 3418519

Parameter	Units	10492253001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	643	652	1	5	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 634605

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10492282005, 10492282006

METHOD BLANK: 3420290

Matrix: Water

Associated Lab Samples: 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	09/26/19 13:34	

LABORATORY CONTROL SAMPLE: 3420291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	978	98	80-120	

SAMPLE DUPLICATE: 3421452

Parameter	Units	10491747051 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	148	141	5	5	

SAMPLE DUPLICATE: 3421453

Parameter	Units	10491747052 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	243	244	0	5	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 158705

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 711139

Matrix: Water

Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	09/25/19 14:27	

LABORATORY CONTROL SAMPLE: 711140

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.22	109	90-110	

MATRIX SPIKE SAMPLE: 711142

Parameter	Units	20122719001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.11	54	75-125	M1

SAMPLE DUPLICATE: 711141

Parameter	Units	20122719001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0054		20	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

QC Batch: 633627

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3415968

Matrix: Water

Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	09/21/19 01:10	
Nitrate as N	mg/L	<0.012	0.10	0.012	09/21/19 01:10	
Sulfate	mg/L	<0.28	1.2	0.28	09/21/19 01:10	

LABORATORY CONTROL SAMPLE: 3415969

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.5	92	90-110	
Nitrate as N	mg/L	1	0.90	90	90-110	
Sulfate	mg/L	12.5	11.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415970 3415971

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10492282002 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	4.6	12.5	12.5	15.2	15.1	85	85	85	90-110	0	20	M1
Nitrate as N	mg/L	1.8	1	1	2.4	2.4	63	63	63	90-110	0	20	M1
Sulfate	mg/L	7.1	12.5	12.5	17.9	17.8	86	85	85	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 634559 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10492282002, 10492282003

METHOD BLANK: 3420088 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	09/26/19 09:25	

LABORATORY CONTROL SAMPLE: 3420089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420090 3420091

Parameter	Units	10491655010		3420090		3420091		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Nitrogen, NO2 plus NO3	mg/L	16.3	1	1	1	17.1	17.3	80	100	90-110	1	20 M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420092 3420093

Parameter	Units	10491870001		3420092		3420093		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1	1.0	1.0	100	100	90-110	0	20

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 634693 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10492282004, 10492282005, 10492282006

METHOD BLANK: 3420880 Matrix: Water
Associated Lab Samples: 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	09/26/19 11:55	

LABORATORY CONTROL SAMPLE: 3420881

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420882 3420883

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10492282004 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	0.035J	1	1	1.1	1.1	107	107	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420884 3420885

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10492282005 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	1.4	1	1	2.4	2.5	106	115	90-110	4	20	E,M1	

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 634111 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 3418115 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	09/25/19 07:26	

LABORATORY CONTROL SAMPLE: 3418116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	313	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3418117 3418118

Parameter	Units	10492282002		3418117		3418118		% Rec Limits	RPD	Max RPD	Qual
		10492282002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chemical Oxygen Demand	mg/L	<17.0	250	250	265	256	101	98	90-110	3	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3418119 3418120

Parameter	Units	10492282003		3418119		3418120		% Rec Limits	RPD	Max RPD	Qual
		10492282003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chemical Oxygen Demand	mg/L	21.8J	250	250	254	255	93	93	90-110	0	20

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QUALITY CONTROL DATA

Project: 1497 Freeman WA-Cenex Harvest
Pace Project No.: 10492282

QC Batch: 175792 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

METHOD BLANK: 696584 Matrix: Water
Associated Lab Samples: 10492282002, 10492282003, 10492282004, 10492282005, 10492282006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	09/27/19 12:28	

LABORATORY CONTROL SAMPLE: 696585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.2	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696586 696587

Parameter	Units	696586		696587		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual	
		10492264001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Total Organic Carbon	mg/L	<1.0	25	25	25.6	26.0	101	102	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696588 696589

Parameter	Units	696588		696589		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual	
		10492503001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Total Organic Carbon	mg/L	<393 ug/L	25	25	25.6	25.7	102	102	80-120	0	20	

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QUALIFIERS

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
J	Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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METHOD CROSS REFERENCE TABLE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492282002	MW6U-GW-091919	RSK175	1352492	RSK-175	1352492
10492282003	MW6D-GW-091919	RSK175	1352492	RSK-175	1352492
10492282004	MW17D-GW-091919	RSK175	1352492	RSK-175	1352492
10492282005	WS5-GW-091919	RSK175	1352492	RSK-175	1352492
10492282006	MW14D-GW-091919	RSK175	1352492	RSK-175	1352492
10492282002	MW6U-GW-091919	EPA 3010	633710	EPA 6010D	635461
10492282003	MW6D-GW-091919	EPA 3010	633710	EPA 6010D	635461
10492282004	MW17D-GW-091919	EPA 3010	633710	EPA 6010D	635461
10492282005	WS5-GW-091919	EPA 3010	633710	EPA 6010D	635461
10492282006	MW14D-GW-091919	EPA 3010	633710	EPA 6010D	635461
10492282002	MW6U-GW-091919	EPA 7470A	633731	EPA 7470A	635106
10492282003	MW6D-GW-091919	EPA 7470A	633731	EPA 7470A	635106
10492282004	MW17D-GW-091919	EPA 7470A	633731	EPA 7470A	635106
10492282005	WS5-GW-091919	EPA 7470A	633731	EPA 7470A	635106
10492282006	MW14D-GW-091919	EPA 7470A	633731	EPA 7470A	635106
10492282001	TB05-091919	EPA 8260B	634015		
10492282002	MW6U-GW-091919	EPA 8260B	634015		
10492282003	MW6D-GW-091919	EPA 8260B	634015		
10492282004	MW17D-GW-091919	EPA 8260B	634015		
10492282005	WS5-GW-091919	EPA 8260B	634015		
10492282006	MW14D-GW-091919	EPA 8260B	634015		
10492282002	MW6U-GW-091919	SM 2320B	634759		
10492282003	MW6D-GW-091919	SM 2320B	634759		
10492282004	MW17D-GW-091919	SM 2320B	634759		
10492282005	WS5-GW-091919	SM 2320B	634759		
10492282006	MW14D-GW-091919	SM 2320B	634759		
10492282002	MW6U-GW-091919	SM 2540C	634182		
10492282003	MW6D-GW-091919	SM 2540C	634182		
10492282004	MW17D-GW-091919	SM 2540C	634182		
10492282005	WS5-GW-091919	SM 2540C	634605		
10492282006	MW14D-GW-091919	SM 2540C	634605		
10492282002	MW6U-GW-091919	SM 4500-S-2 D	158705		
10492282003	MW6D-GW-091919	SM 4500-S-2 D	158705		
10492282004	MW17D-GW-091919	SM 4500-S-2 D	158705		
10492282005	WS5-GW-091919	SM 4500-S-2 D	158705		
10492282006	MW14D-GW-091919	SM 4500-S-2 D	158705		
10492282002	MW6U-GW-091919	EPA 300.0	633627		
10492282003	MW6D-GW-091919	EPA 300.0	633627		
10492282004	MW17D-GW-091919	EPA 300.0	633627		
10492282005	WS5-GW-091919	EPA 300.0	633627		
10492282006	MW14D-GW-091919	EPA 300.0	633627		
10492282002	MW6U-GW-091919	EPA 353.2	634559		
10492282003	MW6D-GW-091919	EPA 353.2	634559		
10492282004	MW17D-GW-091919	EPA 353.2	634693		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1497 Freeman WA-Cenex Harvest

Pace Project No.: 10492282

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492282005	WS5-GW-091919	EPA 353.2	634693		
10492282006	MW14D-GW-091919	EPA 353.2	634693		
10492282002	MW6U-GW-091919	EPA 410.4	634111	EPA 410.4	634213
10492282003	MW6D-GW-091919	EPA 410.4	634111	EPA 410.4	634213
10492282004	MW17D-GW-091919	EPA 410.4	634111	EPA 410.4	634213
10492282005	WS5-GW-091919	EPA 410.4	634111	EPA 410.4	634213
10492282006	MW14D-GW-091919	EPA 410.4	634111	EPA 410.4	634213
10492282002	MW6U-GW-091919	SM 5310C	175792		
10492282003	MW6D-GW-091919	SM 5310C	175792		
10492282004	MW17D-GW-091919	SM 5310C	175792		
10492282005	WS5-GW-091919	SM 5310C	175792		
10492282006	MW14D-GW-091919	SM 5310C	175792		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	
Company: UPRR Jacobs Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Report To: Mark Ochsner, Brad Ostapkowicz Copy To: Steve Demus, Jonathan Espinoza Copy To: David Hodson, UPRR-Sysdat@ghd.com Purchase Order #: PEDD#1497 Project Name: Freeman WA-Cenex Harvest Lease Project #: 1497	Attention: Anne Walsh Company: UPRR Address: 1400 W. 52nd Ave, Denver, CO 80221 Contract# 9900758938 Pace Project Manager: Jennifer Gross Pace Profile #: 36447 / 4	Regulatory Agency: State / Location: WA / Freeman
Email: Phone: Requested Due Date: 10 Day Standard			

ITEM #	SAMPLE ID <small>One Character per box. (A-Z, 0-9, /, -) Sample IDs must be unique</small>	MATRIX CODE (see table below for details)	SAMPLE TYPE (G-DRAW, C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES								ANALYSES TEST	REQUESTED ANALYSIS FILTERED (Y/N)													MS/MSD REQUESTED				
				DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Low Level VOCs by 8250	6010/1410 TAL Dissolved Metals*		2370 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane Ethane Ethyne PAK175	CCID 410.4	Nitrate-Nitrite 453.2	4500 Total Phosphorus	6010 Total Hex								
1	TB05-091919	WTG	9/19/19	0730	-	3					X					X																		001
2	MW00-GW-091919	WTG	9/19/19	0810	0855	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	002	
3	MW6D-GW-091919	WTG	9/19/19	0950	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	003	
4	MW17D-GW-091919	WTG	9/19/19	1030	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	004	
5	W55-GW-091919	WTG	9/19/19	1055	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	005	
6	MW14D-GW-091919	WTG	9/19/19	1500	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	006	
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Short hold analyses are in bold * Field filtered by client cooler 1 of 2	K S Jacobs	9/19/19	1630	PACE	9/20/19	825	1.4 0.1 Y Y Y

SAMPLER NAME AND SIGNATURE		RECEIVED BY:
PRINT Name of SAMPLER:	<i>Karla Savage</i>	
SIGNATURE of SAMPLER:	<i>K S Savage</i>	
DATE Signed:		9/19/19

Sample Condition Upon Receipt	Client Name: <u>UPRR Jacobs</u>	Project #: WO#: 10492282	PM: JMG Due Date: 10/04/19 CLIENT: UPRR_Jacobs
--------------------------------------	---------------------------------	---------------------------------	--

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 49343733 (2890)

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted
 T4(0254) T5(0489)

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.5, 0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>-0.1</u>	Cooler Temp Corrected w/temp blank: <u>1.4, 0.1</u> °C	°C <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: RUC 9.20.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>2-6: 1/1 1/1 1/1</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes See Exception <input type="checkbox"/> Chlorine? <input type="checkbox"/> No pH Paper Lot#
Exceptions <u>VOA, Coliform, TOC, DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip <u>203619</u> <u>10D4281</u>
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>225258</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JENNI GROSS Date: 09/23/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: MKZ Page 62 of 68



12135902

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 9/20/2019 Results Requested By: 10/4/2019

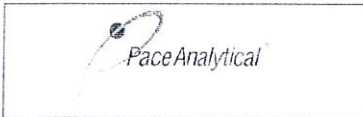
Workorder: 10492282 Workorder Name: 1497 Freeman WA-Cenex Harvest

Report To		Subcontract To				Requested Analysis																								
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				5632354 / 5310 TOC																								
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix											Preserved Containers				LAB USE ONLY										
1	MW6U-GW-091919	PS	9/19/2019 08:55	10492282002	Water											2														
2	MW6D-GW-091919	PS	9/19/2019 09:50	10492282003	Water											2														
3	MW17D-GW-091919	PS	9/19/2019 10:30	10492282004	Water											2														
4	WS5-GW-091919	PS	9/19/2019 10:55	10492282005	Water											2														
5	MW14D-GW-091919	PS	9/19/2019 15:00	10492282006	Water	2																								

Transfers						Comments					
Released By	Date/Time	Received By	Date/Time								
<i>[Signature]</i>	9/23/19 1800	<i>[Signature]</i>	9/23/19 1900								
<i>[Signature]</i>	9/23/19 2330	<i>[Signature]</i>	9/24/19 0630								

Cooler Temperature on Receipt 0.6 °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-VM-C-001-rev.13

Document Revised: 30Apr2019
Page 1 of 1

Issuing Authority:
Pace Virginia Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace WA

Project #: _____

WO# : 12135902

PM: RK1 Due Date: 10/04/19

CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.3 Cooler Temp Corrected °C: 0.6 Biological Tissue Frozen? Yes No N/A

Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 9/23/19 DC

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		12.
-Includes Date/Time/ID/Analysis Matrix: <u>WJ</u>			
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____

Field Data Required? Yes No

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lavenna Peruri Date: 9/24/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



Sample Condition Upon Receipt

PM: CMM Due Date: 10/08/19

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Project

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5
 Therm Fisher IR 6
 Therm Fisher IR #10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9.24.19 CAL

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

H011



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 9/20/2019 Results Requested By: 10/4/2019

Workorder: 10492282 Workorder Name: 1497 Freeman WA-Cenex Harvest

Report To	Subcontract To	Requested Analysis											
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710												

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				5644436 / Headspace Analysis	LAB USE ONLY
						VSG					
1	MW6U-GW-091919	PS	9/19/2019 08:55	10492282002	Water	3				X	-01
2	MW6D-GW-091919	PS	9/19/2019 09:50	10492282003	Water	3				X	02
3	MW17D-GW-091919	PS	9/19/2019 10:30	10492282004	Water	3				X	03
4	WS5-GW-091919	PS	9/19/2019 10:55	10492282005	Water	3				X	04
5	MW14D-GW-091919	PS	9/19/2019 15:00	10492282006	Water	3				X	05

Transfers						Comments					
Released By	Date/Time	Received By	Date/Time								
<i>Neil Pas</i>	9/23/19 16:15	<i>Kenley M...</i>	9:00 9/24/19			SHORT HOLD					

Cooler Temperature on Receipt 011 °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

04-301
A32

4638 0200 1007

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	<i>PACETWA</i>	SDG#:	<i>1142429</i>
Cooler Received/Opened On:	<i>9/24/19</i>	Temperature:	<i>0.1</i>
Received By:	<i>Hailey Melson</i>		
Signature:	<i>Hailey Melson</i>		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		<input checked="" type="checkbox"/>	
COC Signed / Accurate?		<input checked="" type="checkbox"/>	
Bottles arrive intact?		<input checked="" type="checkbox"/>	
Correct bottles used?		<input checked="" type="checkbox"/>	
Sufficient volume sent?			
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

October 07, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

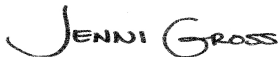
RE: Project: 1497 Freeman,WA-Cenex Harvest
Pace Project No.: 10492414

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 21, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman, WA-Cenex Harvest
Pace Project No.: 10492414

Minnesota Certification IDs

<p>1700 Elm Street SE, Minneapolis, MN 55414-2485 A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #: 74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Virginia Minnesota Certification ID's

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
---	--

New Orleans Certification IDs

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119 Commonwealth of Virginia (TNI): 480246</p>
--	--

Pace Analytical National Certification IDs

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1497 Freeman, WA-Cenex Harvest
Pace Project No.: 10492414

Pace Analytical National Certification IDs

Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364
Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975

New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10492414001	TB06-092019	Water	09/20/19 08:00	09/21/19 09:30
10492414002	MW3D-GW-092019	Water	09/20/19 09:10	09/21/19 09:30
10492414003	MW9U-GW-092019	Water	09/20/19 11:30	09/21/19 09:30
10492414004	MW9U-GW-092019B	Water	09/20/19 11:30	09/21/19 09:30
10492414005	MW9U-FB-092019	Water	09/20/19 11:30	09/21/19 09:30
10492414006	MW9D-GW-092019	Water	09/20/19 12:35	09/21/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1497 Freeman, WA-Cenex Harvest
Pace Project No.: 10492414

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10492414001	TB06-092019	EPA 8260B	DS2	83	PASI-M
10492414002	MW3D-GW-092019	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492414003	MW9U-GW-092019	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492414004	MW9U-GW-092019B	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10492414005	MW9U-FB-092019	EPA 8260B	DS2	83	PASI-M
10492414006	MW9D-GW-092019	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	KDC	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	KEO	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10492414002	MW3D-GW-092019					
EPA 6010D	Barium, Dissolved	41.6	ug/L	10.0	10/03/19 17:11	
EPA 6010D	Beryllium, Dissolved	0.16J	ug/L	5.0	10/03/19 17:11	
EPA 6010D	Chromium, Dissolved	0.79J	ug/L	10.0	10/03/19 17:11	
EPA 6010D	Vanadium, Dissolved	1.9J	ug/L	15.0	10/03/19 17:11	
EPA 6010D	Zinc, Dissolved	6.3J	ug/L	20.0	10/03/19 17:11	
SM 2320B	Alkalinity, Total as CaCO3	143	mg/L	5.0	09/26/19 14:32	
SM 2540C	Total Dissolved Solids	203	mg/L	10.0	09/26/19 13:34	
EPA 300.0	Chloride	1.3	mg/L	1.2	09/21/19 12:07	M1
EPA 300.0	Nitrate as N	0.14	mg/L	0.10	09/21/19 12:07	M1
EPA 300.0	Sulfate	3.0	mg/L	1.2	09/21/19 12:07	M1
EPA 353.2	Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	09/26/19 12:29	
SM 5310C	Total Organic Carbon	0.50J	mg/L	1.0	09/27/19 17:38	
10492414003	MW9U-GW-092019					
EPA 6010D	Barium, Dissolved	21.5	ug/L	10.0	10/03/19 17:20	
EPA 6010D	Beryllium, Dissolved	0.15J	ug/L	5.0	10/03/19 17:20	
EPA 6010D	Cobalt, Dissolved	0.70J	ug/L	10.0	10/03/19 17:20	
EPA 6010D	Lead, Dissolved	2.2J	ug/L	10.0	10/03/19 17:20	
EPA 6010D	Vanadium, Dissolved	7.7J	ug/L	15.0	10/03/19 17:20	
EPA 8260B	Carbon disulfide	1.6	ug/L	1.0	09/24/19 00:26	
EPA 8260B	Carbon tetrachloride	514	ug/L	2.5	09/24/19 14:54	
EPA 8260B	Chloroform	14.4	ug/L	1.0	09/24/19 00:26	
SM 2320B	Alkalinity, Total as CaCO3	161	mg/L	5.0	09/26/19 14:36	
SM 2540C	Total Dissolved Solids	460	mg/L	200	09/27/19 11:54	
EPA 300.0	Chloride	12.0	mg/L	1.2	09/21/19 13:31	
EPA 300.0	Nitrate as N	5.5	mg/L	0.10	09/21/19 13:31	
EPA 300.0	Sulfate	33.6	mg/L	1.2	09/21/19 13:31	
EPA 353.2	Nitrogen, NO2 plus NO3	7.0	mg/L	0.50	09/26/19 12:42	
SM 5310C	Total Organic Carbon	1.4	mg/L	1.0	09/27/19 17:51	
10492414004	MW9U-GW-092019B					
EPA 6010D	Barium, Dissolved	22.0	ug/L	10.0	10/03/19 17:22	
EPA 6010D	Beryllium, Dissolved	0.12J	ug/L	5.0	10/03/19 17:22	
EPA 6010D	Cobalt, Dissolved	1.7J	ug/L	10.0	10/03/19 17:22	
EPA 6010D	Lead, Dissolved	2.6J	ug/L	10.0	10/03/19 17:22	
EPA 6010D	Nickel, Dissolved	2.9J	ug/L	20.0	10/03/19 17:22	
EPA 6010D	Vanadium, Dissolved	7.7J	ug/L	15.0	10/03/19 17:22	
EPA 6010D	Zinc, Dissolved	6.8J	ug/L	20.0	10/03/19 17:22	
EPA 8260B	Carbon disulfide	1.4	ug/L	1.0	09/24/19 00:50	
EPA 8260B	Carbon tetrachloride	528	ug/L	2.5	09/24/19 15:17	
EPA 8260B	Chloroform	14.9	ug/L	1.0	09/24/19 00:50	
SM 2320B	Alkalinity, Total as CaCO3	158	mg/L	5.0	09/26/19 14:39	
SM 2540C	Total Dissolved Solids	335	mg/L	50.0	09/27/19 11:54	
EPA 300.0	Chloride	11.9	mg/L	1.2	09/21/19 13:47	
EPA 300.0	Nitrate as N	5.5	mg/L	0.10	09/21/19 13:47	
EPA 300.0	Sulfate	33.4	mg/L	1.2	09/21/19 13:47	
EPA 353.2	Nitrogen, NO2 plus NO3	7.0	mg/L	0.50	09/26/19 12:43	
SM 5310C	Total Organic Carbon	1.3J	mg/L	2.0	09/29/19 12:47	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10492414005	MW9U-FB-092019					
EPA 8260B	Bromomethane	32.6	ug/L	4.0	09/23/19 21:40	
EPA 8260B	Chloromethane	465	ug/L	20.0	09/24/19 14:30	
10492414006	MW9D-GW-092019					
EPA 6010D	Barium, Dissolved	29.1	ug/L	10.0	10/03/19 17:23	
EPA 6010D	Cobalt, Dissolved	1.1J	ug/L	10.0	10/03/19 17:23	
EPA 6010D	Copper, Dissolved	3.1J	ug/L	10.0	10/03/19 17:23	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	10/03/19 17:23	
EPA 6010D	Vanadium, Dissolved	8.2J	ug/L	15.0	10/03/19 17:23	
EPA 6010D	Zinc, Dissolved	8.3J	ug/L	20.0	10/03/19 17:23	
EPA 8260B	Carbon tetrachloride	74.4	ug/L	0.50	09/24/19 01:14	
EPA 8260B	Chloroform	4.0	ug/L	1.0	09/24/19 01:14	
SM 2320B	Alkalinity, Total as CaCO ₃	178	mg/L	5.0	09/26/19 14:56	
SM 2540C	Total Dissolved Solids	310	mg/L	20.0	09/27/19 11:54	
EPA 300.0	Chloride	12.9	mg/L	1.2	09/21/19 14:51	
EPA 300.0	Nitrate as N	2.8	mg/L	0.10	09/21/19 14:51	
EPA 300.0	Sulfate	31.3	mg/L	1.2	09/21/19 14:51	
EPA 353.2	Nitrogen, NO ₂ plus NO ₃	3.5	mg/L	0.50	09/26/19 12:44	
SM 5310C	Total Organic Carbon	1.3	mg/L	1.0	09/27/19 18:17	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 1352492

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): L1142385-01

P6: Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

- MS (Lab ID: R3454903-4)
- Methane

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

6 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 634015

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3417682)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3417683)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3417684)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3417685)
 - 1,2-Dichloroethene (Total)
- MW3D-GW-092019 (Lab ID: 10492414002)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman,WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 07, 2019

Analyte Comments:

QC Batch: 634015

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MW9D-GW-092019 (Lab ID: 10492414006)
 - 1,2-Dichloroethene (Total)
- MW9U-FB-092019 (Lab ID: 10492414005)
 - 1,2-Dichloroethene (Total)
- MW9U-GW-092019 (Lab ID: 10492414003)
 - 1,2-Dichloroethene (Total)
- MW9U-GW-092019B (Lab ID: 10492414004)
 - 1,2-Dichloroethene (Total)
- TB06-092019 (Lab ID: 10492414001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3417682)
 - Dichlorofluoromethane
- LCS (Lab ID: 3417683)
 - Dichlorofluoromethane
- MS (Lab ID: 3417684)
 - Dichlorofluoromethane
- MSD (Lab ID: 3417685)
 - Dichlorofluoromethane
- MW3D-GW-092019 (Lab ID: 10492414002)
 - Dichlorofluoromethane
- MW9D-GW-092019 (Lab ID: 10492414006)
 - Dichlorofluoromethane
- MW9U-FB-092019 (Lab ID: 10492414005)
 - Dichlorofluoromethane
- MW9U-GW-092019 (Lab ID: 10492414003)
 - Dichlorofluoromethane
- MW9U-GW-092019B (Lab ID: 10492414004)
 - Dichlorofluoromethane
- TB06-092019 (Lab ID: 10492414001)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 158847

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20122723001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 712003)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 633745

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10492414002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3416631)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3416632)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman,WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 634693

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10492282004,10492282005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3420885)
 - Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 634693

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3420884)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3420885)
 - Nitrogen, NO2 plus NO3

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1497 Freeman,WA-Cenex Harvest

Pace Project No.: 10492414

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 07, 2019

General Information:

4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Sample Project No.: 10492414

Sample: TB06-092019 **Lab ID: 10492414001** Collected: 09/20/19 08:00 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 21:16	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 21:16	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 21:16	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 21:16	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 21:16	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 21:16	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:16	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:16	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 21:16	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 21:16	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:16	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:16	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 21:16	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 21:16	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 21:16	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 21:16	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 21:16	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 21:16	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 21:16	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:16	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 21:16	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:16	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 21:16	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 21:16	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 21:16	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 21:16	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:16	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 21:16	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 21:16	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 21:16	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 21:16	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 21:16	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 21:16	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 21:16	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 21:16	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 21:16	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 21:16	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 21:16	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/23/19 21:16	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 21:16	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 21:16	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:16	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 21:16	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 21:16	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/23/19 21:16	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 21:16	124-48-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Sample Project No.: 10492414

Sample: TB06-092019 **Lab ID: 10492414001** Collected: 09/20/19 08:00 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 21:16	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 21:16	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 21:16	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 21:16	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 21:16	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 21:16	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 21:16	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 21:16	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 21:16	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 21:16	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 21:16	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 21:16	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:16	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 21:16	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 21:16	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 21:16	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 21:16	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 21:16	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 21:16	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 21:16	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:16	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:16	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 21:16	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 21:16	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 21:16	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:16	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:16	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:16	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 21:16	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 21:16	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:16	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 21:16	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 21:16	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 21:16	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	75-136		1		09/23/19 21:16	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		09/23/19 21:16	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		09/23/19 21:16	460-00-4	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: MW3D-GW-092019 **Lab ID: 10492414002** Collected: 09/20/19 09:10 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:06	09/26/19 13:06	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:06	09/26/19 13:06	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:06	09/26/19 13:06	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/03/19 06:32	10/03/19 17:11	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/03/19 06:32	10/03/19 17:11	7440-38-2	
Barium, Dissolved	41.6	ug/L	10.0	0.60	1	10/03/19 06:32	10/03/19 17:11	7440-39-3	
Beryllium, Dissolved	0.16J	ug/L	5.0	0.12	1	10/03/19 06:32	10/03/19 17:11	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/03/19 06:32	10/03/19 17:11	7440-43-9	
Chromium, Dissolved	0.79J	ug/L	10.0	0.66	1	10/03/19 06:32	10/03/19 17:11	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	10/03/19 06:32	10/03/19 17:11	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	10/03/19 06:32	10/03/19 17:11	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/03/19 06:32	10/03/19 17:11	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/03/19 06:32	10/03/19 17:11	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/03/19 06:32	10/03/19 17:11	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/03/19 06:32	10/03/19 17:11	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/03/19 06:32	10/03/19 17:11	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/03/19 06:32	10/03/19 17:11	7440-28-0	
Vanadium, Dissolved	1.9J	ug/L	15.0	0.43	1	10/03/19 06:32	10/03/19 17:11	7440-62-2	
Zinc, Dissolved	6.3J	ug/L	20.0	6.3	1	10/03/19 06:32	10/03/19 17:11	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 06:40	09/27/19 16:00	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/24/19 00:02	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/24/19 00:02	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:02	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/24/19 00:02	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:02	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:02	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:02	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:02	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:02	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/24/19 00:02	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:02	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:02	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/24/19 00:02	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/24/19 00:02	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:02	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:02	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/24/19 00:02	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:02	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:02	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:02	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Sample: MW3D-GW-092019 **Lab ID: 10492414002** Collected: 09/20/19 09:10 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/24/19 00:02	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:02	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/24/19 00:02	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/24/19 00:02	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/24/19 00:02	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/24/19 00:02	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:02	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/24/19 00:02	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/24/19 00:02	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/24/19 00:02	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/24/19 00:02	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/24/19 00:02	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/24/19 00:02	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:02	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:02	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/24/19 00:02	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/24/19 00:02	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/24/19 00:02	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/24/19 00:02	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/24/19 00:02	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/24/19 00:02	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:02	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/24/19 00:02	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/24/19 00:02	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:02	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/24/19 00:02	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/24/19 00:02	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/24/19 00:02	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/24/19 00:02	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/24/19 00:02	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/24/19 00:02	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:02	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:02	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/24/19 00:02	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/24/19 00:02	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/24/19 00:02	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/24/19 00:02	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/24/19 00:02	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:02	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/24/19 00:02	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/24/19 00:02	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/24/19 00:02	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/24/19 00:02	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/24/19 00:02	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/24/19 00:02	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/24/19 00:02	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW3D-GW-092019** Lab ID: **10492414002** Collected: 09/20/19 09:10 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level									
Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:02	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:02	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:02	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/24/19 00:02	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:02	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:02	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:02	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:02	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/24/19 00:02	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/24/19 00:02	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:02	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:02	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/24/19 00:02	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/24/19 00:02	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	75-136		1		09/24/19 00:02	17060-07-0	
Toluene-d8 (S)	103	%	75-125		1		09/24/19 00:02	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125		1		09/24/19 00:02	460-00-4	
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	143	mg/L	5.0	2.0	1		09/26/19 14:32		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Total Dissolved Solids	203	mg/L	10.0	5.0	1		09/26/19 13:34		
4500S2D Sulfide, Total									
Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/26/19 12:55	18496-25-8	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Chloride	1.3	mg/L	1.2	0.12	1		09/21/19 12:07	16887-00-6	M1
Nitrate as N	0.14	mg/L	0.10	0.012	1		09/21/19 12:07	14797-55-8	M1
Sulfate	3.0	mg/L	1.2	0.28	1		09/21/19 12:07	14808-79-8	M1
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	0.018	1		09/26/19 12:29		
410.4 COD									
Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 16:39	09/25/19 07:46		
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.50J	mg/L	1.0	0.39	1		09/27/19 17:38	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Sample: **MW9U-GW-092019** Lab ID: **10492414003** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:09	09/26/19 13:09	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:09	09/26/19 13:09	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:09	09/26/19 13:09	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/03/19 06:32	10/03/19 17:20	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/03/19 06:32	10/03/19 17:20	7440-38-2	
Barium, Dissolved	21.5	ug/L	10.0	0.60	1	10/03/19 06:32	10/03/19 17:20	7440-39-3	
Beryllium, Dissolved	0.15J	ug/L	5.0	0.12	1	10/03/19 06:32	10/03/19 17:20	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/03/19 06:32	10/03/19 17:20	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/03/19 06:32	10/03/19 17:20	7440-47-3	
Cobalt, Dissolved	0.70J	ug/L	10.0	0.50	1	10/03/19 06:32	10/03/19 17:20	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	10/03/19 06:32	10/03/19 17:20	7440-50-8	
Lead, Dissolved	2.2J	ug/L	10.0	2.0	1	10/03/19 06:32	10/03/19 17:20	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/03/19 06:32	10/03/19 17:20	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/03/19 06:32	10/03/19 17:20	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/03/19 06:32	10/03/19 17:20	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/03/19 06:32	10/03/19 17:20	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/03/19 06:32	10/03/19 17:20	7440-28-0	
Vanadium, Dissolved	7.7J	ug/L	15.0	0.43	1	10/03/19 06:32	10/03/19 17:20	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	10/03/19 06:32	10/03/19 17:20	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 06:40	09/27/19 16:02	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/24/19 00:26	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/24/19 00:26	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:26	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/24/19 00:26	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:26	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:26	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:26	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:26	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:26	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/24/19 00:26	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:26	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:26	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/24/19 00:26	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/24/19 00:26	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:26	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:26	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/24/19 00:26	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:26	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:26	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:26	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW9U-GW-092019** Lab ID: **10492414003** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/24/19 00:26	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:26	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/24/19 00:26	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/24/19 00:26	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/24/19 00:26	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/24/19 00:26	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:26	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/24/19 00:26	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/24/19 00:26	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/24/19 00:26	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/24/19 00:26	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/24/19 00:26	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/24/19 00:26	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:26	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:26	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/24/19 00:26	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/24/19 00:26	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/24/19 00:26	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/24/19 00:26	74-83-9	
Carbon disulfide	1.6	ug/L	1.0	0.078	1		09/24/19 00:26	75-15-0	
Carbon tetrachloride	514	ug/L	2.5	0.94	5		09/24/19 14:54	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:26	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/24/19 00:26	75-00-3	
Chloroform	14.4	ug/L	1.0	0.45	1		09/24/19 00:26	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:26	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/24/19 00:26	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/24/19 00:26	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/24/19 00:26	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/24/19 00:26	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/24/19 00:26	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/24/19 00:26	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:26	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:26	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/24/19 00:26	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/24/19 00:26	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/24/19 00:26	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/24/19 00:26	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/24/19 00:26	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:26	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/24/19 00:26	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/24/19 00:26	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/24/19 00:26	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/24/19 00:26	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/24/19 00:26	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/24/19 00:26	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/24/19 00:26	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: MW9U-GW-092019 **Lab ID: 10492414003** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:26	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:26	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:26	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/24/19 00:26	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:26	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:26	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:26	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:26	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/24/19 00:26	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/24/19 00:26	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:26	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:26	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/24/19 00:26	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/24/19 00:26	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	75-136		1		09/24/19 00:26	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		09/24/19 00:26	2037-26-5	
4-Bromofluorobenzene (S)	93	%	75-125		1		09/24/19 00:26	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	161	mg/L	5.0	2.0	1		09/26/19 14:36		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	460	mg/L	200	100	1		09/27/19 11:54		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/26/19 12:33	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	12.0	mg/L	1.2	0.12	1		09/21/19 13:31	16887-00-6	
Nitrate as N	5.5	mg/L	0.10	0.012	1		09/21/19 13:31	14797-55-8	
Sulfate	33.6	mg/L	1.2	0.28	1		09/21/19 13:31	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	7.0	mg/L	0.50	0.088	5		09/26/19 12:42		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 16:39	09/25/19 07:46		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.4	mg/L	1.0	0.39	1		09/27/19 17:51	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW9U-GW-092019B** Lab ID: **10492414004** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:17	09/26/19 13:17	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:17	09/26/19 13:17	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:17	09/26/19 13:17	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/03/19 06:32	10/03/19 17:22	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/03/19 06:32	10/03/19 17:22	7440-38-2	
Barium, Dissolved	22.0	ug/L	10.0	0.60	1	10/03/19 06:32	10/03/19 17:22	7440-39-3	
Beryllium, Dissolved	0.12J	ug/L	5.0	0.12	1	10/03/19 06:32	10/03/19 17:22	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/03/19 06:32	10/03/19 17:22	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/03/19 06:32	10/03/19 17:22	7440-47-3	
Cobalt, Dissolved	1.7J	ug/L	10.0	0.50	1	10/03/19 06:32	10/03/19 17:22	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	10/03/19 06:32	10/03/19 17:22	7440-50-8	
Lead, Dissolved	2.6J	ug/L	10.0	2.0	1	10/03/19 06:32	10/03/19 17:22	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/03/19 06:32	10/03/19 17:22	7439-98-7	
Nickel, Dissolved	2.9J	ug/L	20.0	1.1	1	10/03/19 06:32	10/03/19 17:22	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/03/19 06:32	10/03/19 17:22	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/03/19 06:32	10/03/19 17:22	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/03/19 06:32	10/03/19 17:22	7440-28-0	
Vanadium, Dissolved	7.7J	ug/L	15.0	0.43	1	10/03/19 06:32	10/03/19 17:22	7440-62-2	
Zinc, Dissolved	6.8J	ug/L	20.0	6.3	1	10/03/19 06:32	10/03/19 17:22	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 06:40	09/27/19 16:05	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/24/19 00:50	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/24/19 00:50	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:50	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/24/19 00:50	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:50	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 00:50	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:50	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:50	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:50	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/24/19 00:50	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:50	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:50	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/24/19 00:50	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/24/19 00:50	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:50	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 00:50	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/24/19 00:50	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:50	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:50	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:50	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW9U-GW-092019B** Lab ID: **10492414004** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/24/19 00:50	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:50	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/24/19 00:50	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/24/19 00:50	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/24/19 00:50	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/24/19 00:50	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:50	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/24/19 00:50	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/24/19 00:50	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/24/19 00:50	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/24/19 00:50	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/24/19 00:50	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/24/19 00:50	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:50	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 00:50	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/24/19 00:50	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/24/19 00:50	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/24/19 00:50	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/24/19 00:50	74-83-9	
Carbon disulfide	1.4	ug/L	1.0	0.078	1		09/24/19 00:50	75-15-0	
Carbon tetrachloride	528	ug/L	2.5	0.94	5		09/24/19 15:17	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:50	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/24/19 00:50	75-00-3	
Chloroform	14.9	ug/L	1.0	0.45	1		09/24/19 00:50	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/24/19 00:50	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/24/19 00:50	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/24/19 00:50	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/24/19 00:50	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/24/19 00:50	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/24/19 00:50	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/24/19 00:50	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 00:50	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:50	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/24/19 00:50	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/24/19 00:50	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/24/19 00:50	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/24/19 00:50	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/24/19 00:50	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/24/19 00:50	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/24/19 00:50	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/24/19 00:50	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/24/19 00:50	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/24/19 00:50	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/24/19 00:50	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/24/19 00:50	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/24/19 00:50	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: MW9U-GW-092019B **Lab ID: 10492414004** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:50	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 00:50	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/24/19 00:50	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/24/19 00:50	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/24/19 00:50	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/24/19 00:50	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:50	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:50	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/24/19 00:50	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/24/19 00:50	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 00:50	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/24/19 00:50	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/24/19 00:50	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/24/19 00:50	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		09/24/19 00:50	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		09/24/19 00:50	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		09/24/19 00:50	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	158	mg/L	5.0	2.0	1		09/26/19 14:39		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	335	mg/L	50.0	25.0	1		09/27/19 11:54		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/26/19 12:56	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	11.9	mg/L	1.2	0.12	1		09/21/19 13:47	16887-00-6	
Nitrate as N	5.5	mg/L	0.10	0.012	1		09/21/19 13:47	14797-55-8	
Sulfate	33.4	mg/L	1.2	0.28	1		09/21/19 13:47	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	7.0	mg/L	0.50	0.088	5		09/26/19 12:43		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 16:39	09/25/19 07:46		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.3J	mg/L	2.0	0.79	2		09/29/19 12:47	7440-44-0	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Sample: **MW9U-FB-092019** Lab ID: **10492414005** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/23/19 21:40	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/23/19 21:40	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 21:40	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/23/19 21:40	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 21:40	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/23/19 21:40	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:40	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:40	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 21:40	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/23/19 21:40	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:40	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:40	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/23/19 21:40	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/23/19 21:40	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 21:40	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/23/19 21:40	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/23/19 21:40	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/23/19 21:40	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/23/19 21:40	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:40	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/23/19 21:40	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:40	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/23/19 21:40	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/23/19 21:40	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/23/19 21:40	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/23/19 21:40	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:40	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/23/19 21:40	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/23/19 21:40	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/23/19 21:40	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/23/19 21:40	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/23/19 21:40	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/23/19 21:40	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/23/19 21:40	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/23/19 21:40	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/23/19 21:40	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/23/19 21:40	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/23/19 21:40	75-25-2	
Bromomethane	32.6	ug/L	4.0	1.8	1		09/23/19 21:40	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/23/19 21:40	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		09/23/19 21:40	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:40	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/23/19 21:40	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		09/23/19 21:40	67-66-3	
Chloromethane	465	ug/L	20.0	0.78	5		09/24/19 14:30	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/23/19 21:40	124-48-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Sample: MW9U-FB-092019 **Lab ID: 10492414005** Collected: 09/20/19 11:30 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/23/19 21:40	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/23/19 21:40	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/23/19 21:40	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/23/19 21:40	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/23/19 21:40	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/23/19 21:40	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/23/19 21:40	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/23/19 21:40	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/23/19 21:40	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/23/19 21:40	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/23/19 21:40	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/23/19 21:40	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/23/19 21:40	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/23/19 21:40	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/23/19 21:40	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/23/19 21:40	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/23/19 21:40	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/23/19 21:40	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/23/19 21:40	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/23/19 21:40	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:40	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/23/19 21:40	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/23/19 21:40	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/23/19 21:40	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/23/19 21:40	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/23/19 21:40	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:40	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:40	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/23/19 21:40	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/23/19 21:40	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/23/19 21:40	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/23/19 21:40	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/23/19 21:40	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/23/19 21:40	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	75-136		1		09/23/19 21:40	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		09/23/19 21:40	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		09/23/19 21:40	460-00-4	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW9D-GW-092019** Lab ID: **10492414006** Collected: 09/20/19 12:35 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	09/26/19 13:20	09/26/19 13:20	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	09/26/19 13:20	09/26/19 13:20	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	09/26/19 13:20	09/26/19 13:20	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/03/19 06:32	10/03/19 17:23	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/03/19 06:32	10/03/19 17:23	7440-38-2	
Barium, Dissolved	29.1	ug/L	10.0	0.60	1	10/03/19 06:32	10/03/19 17:23	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/03/19 06:32	10/03/19 17:23	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/03/19 06:32	10/03/19 17:23	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/03/19 06:32	10/03/19 17:23	7440-47-3	
Cobalt, Dissolved	1.1J	ug/L	10.0	0.50	1	10/03/19 06:32	10/03/19 17:23	7440-48-4	
Copper, Dissolved	3.1J	ug/L	10.0	1.2	1	10/03/19 06:32	10/03/19 17:23	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/03/19 06:32	10/03/19 17:23	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/03/19 06:32	10/03/19 17:23	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	10/03/19 06:32	10/03/19 17:23	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/03/19 06:32	10/03/19 17:23	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/03/19 06:32	10/03/19 17:23	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/03/19 06:32	10/03/19 17:23	7440-28-0	
Vanadium, Dissolved	8.2J	ug/L	15.0	0.43	1	10/03/19 06:32	10/03/19 17:23	7440-62-2	
Zinc, Dissolved	8.3J	ug/L	20.0	6.3	1	10/03/19 06:32	10/03/19 17:23	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	09/27/19 06:40	09/27/19 16:07	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		09/24/19 01:14	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		09/24/19 01:14	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 01:14	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		09/24/19 01:14	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 01:14	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		09/24/19 01:14	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		09/24/19 01:14	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 01:14	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 01:14	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		09/24/19 01:14	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 01:14	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		09/24/19 01:14	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		09/24/19 01:14	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		09/24/19 01:14	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 01:14	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		09/24/19 01:14	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		09/24/19 01:14	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		09/24/19 01:14	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		09/24/19 01:14	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		09/24/19 01:14	541-73-1	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: **MW9D-GW-092019** Lab ID: **10492414006** Collected: 09/20/19 12:35 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		09/24/19 01:14	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 01:14	106-46-7	
1,4-Dioxane (p-Dioxane)	<16.3	ug/L	200	16.3	1		09/24/19 01:14	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		09/24/19 01:14	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		09/24/19 01:14	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		09/24/19 01:14	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		09/24/19 01:14	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		09/24/19 01:14	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		09/24/19 01:14	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		09/24/19 01:14	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		09/24/19 01:14	67-64-1	
Acrolein	<1.2	ug/L	10.0	1.2	1		09/24/19 01:14	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		09/24/19 01:14	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		09/24/19 01:14	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		09/24/19 01:14	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		09/24/19 01:14	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		09/24/19 01:14	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		09/24/19 01:14	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		09/24/19 01:14	74-83-9	
Carbon disulfide	<0.078	ug/L	1.0	0.078	1		09/24/19 01:14	75-15-0	
Carbon tetrachloride	74.4	ug/L	0.50	0.19	1		09/24/19 01:14	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		09/24/19 01:14	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		09/24/19 01:14	75-00-3	
Chloroform	4.0	ug/L	1.0	0.45	1		09/24/19 01:14	67-66-3	
Chloromethane	<0.16	ug/L	4.0	0.16	1		09/24/19 01:14	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		09/24/19 01:14	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		09/24/19 01:14	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		09/24/19 01:14	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		09/24/19 01:14	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		09/24/19 01:14	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		09/24/19 01:14	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		09/24/19 01:14	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		09/24/19 01:14	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		09/24/19 01:14	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		09/24/19 01:14	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		09/24/19 01:14	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		09/24/19 01:14	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		09/24/19 01:14	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		09/24/19 01:14	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		09/24/19 01:14	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		09/24/19 01:14	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		09/24/19 01:14	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		09/24/19 01:14	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		09/24/19 01:14	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		09/24/19 01:14	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		09/24/19 01:14	1330-20-7	

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ANALYTICAL RESULTS

Project: 1497 Freeman, WA-Cenex Harvest

Project No.: 10492414

Sample: MW9D-GW-092019 **Lab ID: 10492414006** Collected: 09/20/19 12:35 Received: 09/21/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		09/24/19 01:14	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		09/24/19 01:14	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		09/24/19 01:14	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		09/24/19 01:14	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		09/24/19 01:14	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		09/24/19 01:14	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		09/24/19 01:14	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 01:14	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		09/24/19 01:14	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		09/24/19 01:14	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		09/24/19 01:14	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		09/24/19 01:14	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		09/24/19 01:14	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		09/24/19 01:14	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%	75-136		1		09/24/19 01:14	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		09/24/19 01:14	2037-26-5	
4-Bromofluorobenzene (S)	92	%	75-125		1		09/24/19 01:14	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	178	mg/L	5.0	2.0	1		09/26/19 14:56		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	310	mg/L	20.0	10.0	1		09/27/19 11:54		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		09/26/19 12:57	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	12.9	mg/L	1.2	0.12	1		09/21/19 14:51	16887-00-6	
Nitrate as N	2.8	mg/L	0.10	0.012	1		09/21/19 14:51	14797-55-8	
Sulfate	31.3	mg/L	1.2	0.28	1		09/21/19 14:51	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	3.5	mg/L	0.50	0.088	5		09/26/19 12:44		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	09/24/19 16:39	09/25/19 07:46		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.3	mg/L	1.0	0.39	1		09/27/19 18:17	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 1352492 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: R3454903-1 Matrix: Water
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	09/26/19 11:43	
Ethane	ug/L	<4.07	13.0	4.07	09/26/19 11:43	
Ethene	ug/L	<4.26	13.0	4.26	09/26/19 11:43	

LABORATORY CONTROL SAMPLE & LCSD: R3454903-6 R3454903-7

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	73.0	76.4	108	113	85.0-115	4.65	20	
Ethane	ug/L	129	119	123	91.9	95.1	85.0-115	3.42	20	
Ethene	ug/L	127	117	121	92.4	95.6	85.0-115	3.40	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3454903-4 R3454903-5

Parameter	Units	L1142385-01 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	948	67.8	67.8	987	1020	58.0	101	85.0-115	2.94	20	P6
Ethane	ug/L	99.3	129	129	212	214	87.1	88.7	85.0-115	0.920	20	
Ethene	ug/L	ND	127	127	115	111	90.6	87.5	85.0-115	3.47	20	

SAMPLE DUPLICATE: R3454903-2

Parameter	Units	L1141674-16 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	541	561	3.52	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3454903-3

Parameter	Units	L1142429-03 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	10.8	10.4J	3.89	20 J	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634664 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3420787 Matrix: Water
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	09/27/19 15:32	

LABORATORY CONTROL SAMPLE: 3420788

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.4	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420789 3420790

Parameter	Units	10491724005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.1	5.1	103	103	80-120	0	20	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 635973 Analysis Method: EPA 6010D
 QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3427630 Matrix: Water
 Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	10/03/19 17:08	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	10/03/19 17:08	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	10/03/19 17:08	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	10/03/19 17:08	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	10/03/19 17:08	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	10/03/19 17:08	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	10/03/19 17:08	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	10/03/19 17:08	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	10/03/19 17:08	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	10/03/19 17:08	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	10/03/19 17:08	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	10/03/19 17:08	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	10/03/19 17:08	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	10/03/19 17:08	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	10/03/19 17:08	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	10/03/19 17:08	

LABORATORY CONTROL SAMPLE: 3427631

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	943	94	80-120	
Arsenic, Dissolved	ug/L	1000	934	93	80-120	
Barium, Dissolved	ug/L	1000	937	94	80-120	
Beryllium, Dissolved	ug/L	1000	949	95	80-120	
Cadmium, Dissolved	ug/L	1000	975	97	80-120	
Chromium, Dissolved	ug/L	1000	934	93	80-120	
Cobalt, Dissolved	ug/L	1000	938	94	80-120	
Copper, Dissolved	ug/L	1000	912	91	80-120	
Lead, Dissolved	ug/L	1000	952	95	80-120	
Molybdenum, Dissolved	ug/L	1000	941	94	80-120	
Nickel, Dissolved	ug/L	1000	935	94	80-120	
Selenium, Dissolved	ug/L	1000	968	97	80-120	
Silver, Dissolved	ug/L	500	463	93	80-120	
Thallium, Dissolved	ug/L	1000	920	92	80-120	
Vanadium, Dissolved	ug/L	1000	928	93	80-120	
Zinc, Dissolved	ug/L	1000	969	97	80-120	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Parameter	Units	3427632		3427633		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10492414002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	916	968	92	97	75-125	5	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	929	960	93	96	75-125	3	20		
Barium, Dissolved	ug/L	41.6	1000	1000	968	999	93	96	75-125	3	20		
Beryllium, Dissolved	ug/L	0.16J	1000	1000	949	978	95	98	75-125	3	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	957	989	96	99	75-125	3	20		
Chromium, Dissolved	ug/L	0.79J	1000	1000	930	958	93	96	75-125	3	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	922	949	92	95	75-125	3	20		
Copper, Dissolved	ug/L	<1.2	1000	1000	917	942	92	94	75-125	3	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	938	967	94	97	75-125	3	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	920	951	92	95	75-125	3	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	915	942	92	94	75-125	3	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	961	990	96	99	75-125	3	20		
Silver, Dissolved	ug/L	<0.40	500	500	465	479	93	96	75-125	3	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	914	939	91	94	75-125	3	20		
Vanadium, Dissolved	ug/L	1.9J	1000	1000	929	956	93	95	75-125	3	20		
Zinc, Dissolved	ug/L	6.3J	1000	1000	954	984	95	98	75-125	3	20		

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QUALITY CONTROL DATA

Project: 1497 Freeman,WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634015 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10492414001, 10492414002, 10492414003, 10492414004, 10492414005, 10492414006

METHOD BLANK: 3417682 Matrix: Water
 Associated Lab Samples: 10492414001, 10492414002, 10492414003, 10492414004, 10492414005, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	09/23/19 17:18	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	09/23/19 17:18	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	09/23/19 17:18	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	09/23/19 17:18	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	09/23/19 17:18	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	09/23/19 17:18	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	09/23/19 17:18	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	09/23/19 17:18	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	09/23/19 17:18	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	200	16.3	09/23/19 17:18	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	09/23/19 17:18	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	09/23/19 17:18	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	09/23/19 17:18	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
2-Hexanone	ug/L	<0.88	5.0	0.88	09/23/19 17:18	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	09/23/19 17:18	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	09/23/19 17:18	
Acetone	ug/L	<9.2	20.0	9.2	09/23/19 17:18	
Acrolein	ug/L	<1.2	10.0	1.2	09/23/19 17:18	
Acrylonitrile	ug/L	<0.91	10.0	0.91	09/23/19 17:18	
Benzene	ug/L	<0.10	0.50	0.10	09/23/19 17:18	
Bromobenzene	ug/L	<0.21	0.50	0.21	09/23/19 17:18	
Bromochloromethane	ug/L	<0.27	1.0	0.27	09/23/19 17:18	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	09/23/19 17:18	
Bromoform	ug/L	<0.80	4.0	0.80	09/23/19 17:18	
Bromomethane	ug/L	<1.8	4.0	1.8	09/23/19 17:18	
Carbon disulfide	ug/L	<0.078	1.0	0.078	09/23/19 17:18	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	09/23/19 17:18	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

METHOD BLANK: 3417682

Matrix: Water

Associated Lab Samples: 10492414001, 10492414002, 10492414003, 10492414004, 10492414005, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
Chloroethane	ug/L	<0.49	1.0	0.49	09/23/19 17:18	
Chloroform	ug/L	<0.45	1.0	0.45	09/23/19 17:18	
Chloromethane	ug/L	<0.16	4.0	0.16	09/23/19 17:18	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	09/23/19 17:18	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
Dibromomethane	ug/L	<0.16	1.0	0.16	09/23/19 17:18	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	09/23/19 17:18	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	09/23/19 17:18	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	09/23/19 17:18	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
Ethylbenzene	ug/L	<0.14	0.50	0.14	09/23/19 17:18	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	09/23/19 17:18	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	09/23/19 17:18	
m&p-Xylene	ug/L	<0.31	1.0	0.31	09/23/19 17:18	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
Methylene Chloride	ug/L	<0.98	4.0	0.98	09/23/19 17:18	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	09/23/19 17:18	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	09/23/19 17:18	
Naphthalene	ug/L	<0.48	1.0	0.48	09/23/19 17:18	
o-Xylene	ug/L	<0.16	0.50	0.16	09/23/19 17:18	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
Styrene	ug/L	<0.19	1.0	0.19	09/23/19 17:18	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	09/23/19 17:18	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	09/23/19 17:18	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	09/23/19 17:18	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	09/23/19 17:18	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	09/23/19 17:18	
Toluene	ug/L	<0.083	0.50	0.083	09/23/19 17:18	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	09/23/19 17:18	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	09/23/19 17:18	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	09/23/19 17:18	
Trichloroethene	ug/L	<0.15	0.40	0.15	09/23/19 17:18	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	09/23/19 17:18	
Vinyl acetate	ug/L	<1.1	10.0	1.1	09/23/19 17:18	
Vinyl chloride	ug/L	<0.092	0.20	0.092	09/23/19 17:18	
Xylene (Total)	ug/L	<0.31	1.5	0.31	09/23/19 17:18	
1,2-Dichloroethane-d4 (S)	%	100	75-136		09/23/19 17:18	
4-Bromofluorobenzene (S)	%	96	75-125		09/23/19 17:18	
Toluene-d8 (S)	%	104	75-125		09/23/19 17:18	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

LABORATORY CONTROL SAMPLE: 3417683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	19.6	98	68-141	
1,1,1-Trichloroethane	ug/L	20	19.3	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	20.1	100	73-125	
1,1,2-Trichloroethane	ug/L	20	20.3	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.1	95	69-132	
1,1-Dichloroethane	ug/L	20	17.7	88	73-125	
1,1-Dichloroethene	ug/L	20	17.3	87	71-126	
1,1-Dichloropropene	ug/L	20	18.0	90	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.6	93	72-126	
1,2,3-Trichloropropane	ug/L	20	19.9	99	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.4	87	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.8	99	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	51.4	103	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.6	98	75-129	
1,2-Dichlorobenzene	ug/L	20	19.5	98	75-129	
1,2-Dichloroethane	ug/L	20	18.6	93	75-125	
1,2-Dichloroethene (Total)	ug/L	40	35.3	88	74-125	N2
1,2-Dichloropropane	ug/L	20	17.4	87	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.9	100	75-127	
1,3-Dichlorobenzene	ug/L	20	19.9	100	75-126	
1,3-Dichloropropane	ug/L	20	19.4	97	75-125	
1,4-Dichlorobenzene	ug/L	20	19.1	95	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	454	113	72-129	
2,2,4-Trimethylpentane	ug/L	20	17.1	86	72-128	
2,2-Dichloropropane	ug/L	20	17.7	89	65-138	
2-Butanone (MEK)	ug/L	100	95.4	95	59-144	
2-Chlorotoluene	ug/L	20	18.9	95	75-127	
2-Hexanone	ug/L	100	102	102	73-134	
4-Chlorotoluene	ug/L	20	19.6	98	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	62-141	
Acetone	ug/L	100	109	109	60-137	
Acrolein	ug/L	200	211	105	60-141	
Acrylonitrile	ug/L	200	179	90	75-129	
Benzene	ug/L	20	18.2	91	73-125	
Bromobenzene	ug/L	20	19.4	97	73-125	
Bromochloromethane	ug/L	20	19.6	98	75-135	
Bromodichloromethane	ug/L	20	18.1	90	75-125	
Bromoform	ug/L	20	20.6	103	67-136	
Bromomethane	ug/L	20	15.0	75	30-150	
Carbon disulfide	ug/L	20	14.4	72	47-137	
Carbon tetrachloride	ug/L	20	19.9	99	75-125	
Chlorobenzene	ug/L	20	18.5	92	75-125	
Chloroethane	ug/L	20	18.7	93	63-136	
Chloroform	ug/L	20	18.0	90	73-128	
Chloromethane	ug/L	20	16.5	83	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.3	91	75-125	
cis-1,3-Dichloropropene	ug/L	20	18.7	93	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

LABORATORY CONTROL SAMPLE: 3417683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.7	108	75-125	
Dibromomethane	ug/L	20	22.8	114	75-125	
Dichlorodifluoromethane	ug/L	20	17.9	90	63-132	
Dichlorofluoromethane	ug/L	20	18.3	92	68-127	
Diisopropyl ether	ug/L	20	17.0	85	71-131	
Ethyl-tert-butyl ether	ug/L	20	15.4	77	75-125	
Ethylbenzene	ug/L	20	19.1	95	75-125	
Hexachloro-1,3-butadiene	ug/L	20	18.7	94	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.5	97	75-125	
m&p-Xylene	ug/L	40	38.3	96	75-126	
Methyl-tert-butyl ether	ug/L	20	16.4	82	75-125	
Methylene Chloride	ug/L	20	17.8	89	70-125	
n-Butylbenzene	ug/L	20	20.1	101	75-126	
n-Propylbenzene	ug/L	20	19.9	99	73-127	
Naphthalene	ug/L	20	16.5	82	63-128	
o-Xylene	ug/L	20	19.4	97	75-128	
p-Isopropyltoluene	ug/L	20	20.1	101	75-125	
sec-Butylbenzene	ug/L	20	21.3	107	75-126	
Styrene	ug/L	20	20.2	101	75-125	
tert-Amylmethyl ether	ug/L	20	15.9	80	75-125	
tert-Butyl Alcohol	ug/L	200	202	101	75-130	
tert-Butylbenzene	ug/L	20	20.6	103	75-131	
Tetrachloroethene	ug/L	20	19.9	99	74-125	
Tetrahydrofuran	ug/L	200	191	95	64-138	
Toluene	ug/L	20	18.5	93	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.0	85	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.5	103	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.0	88	60-127	
Trichloroethene	ug/L	20	19.4	97	75-127	
Trichlorofluoromethane	ug/L	20	17.8	89	72-133	
Vinyl acetate	ug/L	20	18.3	92	61-129	
Vinyl chloride	ug/L	20	17.2	86	75-128	
Xylene (Total)	ug/L	60	57.7	96	75-125	
1,2-Dichloroethane-d4 (S)	%			101	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3417684 3417685

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492282002 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	18.4	19.1	92	96	75-140	4	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	18.9	18.8	95	94	74-136	1	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	18.3	19.7	92	98	66-134	7	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	19.1	20.1	96	100	75-126	5	30	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3417684			3417685							
Parameter	Units	10492282002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	19.1	19.4	95	97	65-146	2	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	16.4	16.3	82	82	68-132	1	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	17.4	16.7	87	83	66-139	4	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	18.3	17.9	91	89	67-134	2	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	19.0	20.0	95	100	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	18.1	19.2	91	96	69-128	6	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	17.8	17.7	89	88	65-140	1	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.1	20.3	95	101	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	45.0	50.3	90	101	54-138	11	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	17.9	18.6	89	93	68-125	4	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	18.0	19.4	90	97	74-136	8	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	17.1	16.9	85	85	68-125	1	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	33.2	32.9	83	82	71-126	1	30	N2
1,2-Dichloropropane	ug/L	<0.16	20	20	16.7	16.6	83	83	67-125	0	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.5	20.4	97	102	68-137	5	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	18.9	19.9	95	99	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	17.8	18.1	89	91	71-125	2	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	18.4	18.9	92	95	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<16.3	400	400	347	362	87	90	68-125	4	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.0	17.0	100	85	54-129	16	30	
2,2-Dichloropropane	ug/L	<0.17	20	20	17.6	18.3	88	91	69-139	4	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	74.5	83.9	74	84	54-144	12	30	
2-Chlorotoluene	ug/L	<0.16	20	20	18.2	19.8	91	99	75-134	8	30	
2-Hexanone	ug/L	<0.88	100	100	82.2	93.7	82	94	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	20	20	18.5	19.5	92	98	72-133	5	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	88.1	98.7	88	99	60-129	11	30	
Acetone	ug/L	<9.2	100	100	71.7	74.4	72	74	62-132	4	30	
Acrolein	ug/L	<1.2	200	200	208	227	104	114	30-150	9	30	
Acrylonitrile	ug/L	<0.91	200	200	154	167	77	84	68-125	9	30	
Benzene	ug/L	<0.10	20	20	16.8	16.5	84	83	68-125	2	30	
Bromobenzene	ug/L	<0.21	20	20	18.2	18.9	91	94	73-126	3	30	
Bromochloromethane	ug/L	<0.27	20	20	18.0	18.0	90	90	66-143	0	30	
Bromodichloromethane	ug/L	<0.22	20	20	17.4	17.1	87	86	74-125	1	30	
Bromoform	ug/L	<0.80	20	20	18.9	20.2	95	101	64-134	7	30	
Bromomethane	ug/L	<1.8	20	20	15.4	15.9	77	79	30-150	3	30	
Carbon disulfide	ug/L	<0.078	20	20	15.2	13.9	76	70	43-147	9	30	
Carbon tetrachloride	ug/L	82.3	20	20	106	107	118	125	71-143	1	30	
Chlorobenzene	ug/L	<0.17	20	20	17.2	17.9	86	90	75-125	4	30	
Chloroethane	ug/L	<0.49	20	20	18.3	17.8	91	89	75-129	3	30	
Chloroform	ug/L	2.7	20	20	19.3	19.3	83	83	66-132	0	30	
Chloromethane	ug/L	<0.16	20	20	16.3	13.1	81	65	53-137	22	30	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	16.6	16.8	83	84	67-133	1	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	16.5	16.4	83	82	66-125	1	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Parameter	Units	10492282002		3417684		3417685		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	19.6	20.3	98	101	62-132	4	30			
Dibromomethane	ug/L	<0.16	20	20	20.4	18.4	102	92	67-125	10	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	19.0	18.6	95	93	71-142	2	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	19.3	18.7	96	94	70-131	3	30			
Diisopropyl ether	ug/L	<0.13	20	20	15.2	15.7	76	79	63-131	4	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	13.9	14.3	69	72	66-128	3	30			
Ethylbenzene	ug/L	<0.14	20	20	18.0	19.0	90	95	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	21.2	18.3	106	91	68-143	15	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	18.5	20.2	93	101	74-130	9	30			
m&p-Xylene	ug/L	<0.31	40	40	36.7	39.0	92	98	69-132	6	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	15.2	15.8	76	79	65-131	4	30			
Methylene Chloride	ug/L	<0.98	20	20	16.8	16.9	84	84	57-125	0	30			
n-Butylbenzene	ug/L	<0.24	20	20	21.0	20.2	105	101	71-131	4	30			
n-Propylbenzene	ug/L	<0.10	20	20	19.9	20.6	100	103	67-138	4	30			
Naphthalene	ug/L	<0.48	20	20	15.3	17.5	77	87	60-130	13	30			
o-Xylene	ug/L	<0.16	20	20	18.6	19.4	93	97	69-131	4	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	20.8	20.5	104	103	72-133	1	30			
sec-Butylbenzene	ug/L	<0.15	20	20	21.7	21.7	108	109	73-134	0	30			
Styrene	ug/L	<0.19	20	20	18.8	18.9	94	94	72-125	1	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	14.8	15.2	74	76	67-125	3	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	164	175	82	87	64-137	6	30			
tert-Butylbenzene	ug/L	<0.15	20	20	20.6	21.1	103	105	70-143	2	30			
Tetrachloroethene	ug/L	<0.17	20	20	19.2	20.2	96	101	72-129	5	30			
Tetrahydrofuran	ug/L	<2.2	200	200	167	183	83	91	66-128	9	30			
Toluene	ug/L	<0.083	20	20	17.7	17.8	88	89	73-125	1	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	16.6	16.1	83	81	62-137	3	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.6	19.3	98	97	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	40.8	42.2	82	84	45-128	3	30			
Trichloroethene	ug/L	<0.15	20	20	18.2	18.4	91	92	74-132	1	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	19.4	19.2	97	96	75-139	1	30			
Vinyl acetate	ug/L	<1.1	20	20	16.7	17.0	83	85	51-135	2	30			
Vinyl chloride	ug/L	<0.092	20	20	18.4	17.8	92	89	68-146	3	30			
Xylene (Total)	ug/L	<0.31	60	60	55.3	58.4	92	97	67-137	5	30			
1,2-Dichloroethane-d4 (S)	%						101	102	75-136					
4-Bromofluorobenzene (S)	%						96	95	75-125					
Toluene-d8 (S)	%						99	100	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest
Pace Project No.: 10492414

QC Batch: 634761 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3421191 Matrix: Water
Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<2.0	5.0	2.0	09/26/19 13:42	

LABORATORY CONTROL SAMPLE & LCSD: 3421192 3421193

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.3	42.3	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3421194 3421195

Parameter	Units	10491747048 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	99.6	40	40	140	138	100	95	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3421196 3421197

Parameter	Units	10492590002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	89.1	40	40	131	133	104	109	80-120	1	20	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634605

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10492414002

METHOD BLANK: 3420290

Matrix: Water

Associated Lab Samples: 10492414002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	09/26/19 13:34	

LABORATORY CONTROL SAMPLE: 3420291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	978	98	80-120	

SAMPLE DUPLICATE: 3421452

Parameter	Units	10491747051 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	148	141	5	5	

SAMPLE DUPLICATE: 3421453

Parameter	Units	10491747052 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	243	244	0	5	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634900

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10492414003, 10492414004, 10492414006

METHOD BLANK: 3421976

Matrix: Water

Associated Lab Samples: 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	5.0J	10.0	5.0	09/27/19 11:54	

LABORATORY CONTROL SAMPLE: 3421977

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 3421978

Parameter	Units	10492899001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	758	752	1	5	

SAMPLE DUPLICATE: 3421979

Parameter	Units	10492899002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	544	1	5	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 158847

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 712000

Matrix: Water

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	09/26/19 12:27	

LABORATORY CONTROL SAMPLE: 712001

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.20	101	90-110	

MATRIX SPIKE SAMPLE: 712003

Parameter	Units	20122723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.26	127	75-125	M1

SAMPLE DUPLICATE: 712002

Parameter	Units	20122723001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	0.0058J		20	

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 633745

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3416629

Matrix: Water

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	09/21/19 14:35	
Nitrate as N	mg/L	<0.012	0.10	0.012	09/21/19 14:35	
Sulfate	mg/L	<0.28	1.2	0.28	09/21/19 14:35	

LABORATORY CONTROL SAMPLE: 3416630

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.1	97	90-110	
Nitrate as N	mg/L	1	0.96	96	90-110	
Sulfate	mg/L	12.5	12.4	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416631 3416632

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492414002 Result	Spike Conc.	Spike Conc.	MS Result								
Chloride	mg/L	1.3	12.5	12.5	12.1	12.2	86	87	90-110	0	20	M1	
Nitrate as N	mg/L	0.14	1	1	0.94	0.94	80	80	90-110	0	20	M1	
Sulfate	mg/L	3.0	12.5	12.5	14.0	14.0	88	88	90-110	0	20	M1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634693

Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3420880

Matrix: Water

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	09/26/19 11:55	

LABORATORY CONTROL SAMPLE: 3420881

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420882 3420883

Parameter	Units	10492282004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.035J	1	1	1.1	1.1	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3420884 3420885

Parameter	Units	10492282005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	1.4	1	1	2.4	2.5	106	115	90-110	4	20	E,M1

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 634118 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 3418139 Matrix: Water
Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	09/25/19 07:41	

LABORATORY CONTROL SAMPLE: 3418140

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	305	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3418141 3418142

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10491870001 Result	Spike Conc.	Spike Conc.	Result							Result
Chemical Oxygen Demand	mg/L	<17.0	250	250	254	254	101	101	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3418143 3418144

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10492090005 Result	Spike Conc.	Spike Conc.	Result							Result
Chemical Oxygen Demand	mg/L	<17.0	250	250	246	241	98	96	90-110	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

QC Batch: 175792

Analysis Method: SM 5310C

QC Batch Method: SM 5310C

Analysis Description: 5310C TOC

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

METHOD BLANK: 696584

Matrix: Water

Associated Lab Samples: 10492414002, 10492414003, 10492414004, 10492414006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	09/27/19 12:28	

LABORATORY CONTROL SAMPLE: 696585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.2	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696586 696587

Parameter	Units	696586		696587		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492264001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	<1.0	25	25	25.6	26.0	101	102	80-120	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 696588 696589

Parameter	Units	696588		696589		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10492503001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	<393 ug/L	25	25	25.6	25.7	102	102	80-120	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1497 Freeman,WA-Cenex Harvest

Pace Project No.: 10492414

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

J Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492414002	MW3D-GW-092019	RSK175	1352492	RSK-175	1352492
10492414003	MW9U-GW-092019	RSK175	1352492	RSK-175	1352492
10492414004	MW9U-GW-092019B	RSK175	1352492	RSK-175	1352492
10492414006	MW9D-GW-092019	RSK175	1352492	RSK-175	1352492
10492414002	MW3D-GW-092019	EPA 3010	635973	EPA 6010D	636234
10492414003	MW9U-GW-092019	EPA 3010	635973	EPA 6010D	636234
10492414004	MW9U-GW-092019B	EPA 3010	635973	EPA 6010D	636234
10492414006	MW9D-GW-092019	EPA 3010	635973	EPA 6010D	636234
10492414002	MW3D-GW-092019	EPA 7470A	634664	EPA 7470A	635110
10492414003	MW9U-GW-092019	EPA 7470A	634664	EPA 7470A	635110
10492414004	MW9U-GW-092019B	EPA 7470A	634664	EPA 7470A	635110
10492414006	MW9D-GW-092019	EPA 7470A	634664	EPA 7470A	635110
10492414001	TB06-092019	EPA 8260B	634015		
10492414002	MW3D-GW-092019	EPA 8260B	634015		
10492414003	MW9U-GW-092019	EPA 8260B	634015		
10492414004	MW9U-GW-092019B	EPA 8260B	634015		
10492414005	MW9U-FB-092019	EPA 8260B	634015		
10492414006	MW9D-GW-092019	EPA 8260B	634015		
10492414002	MW3D-GW-092019	SM 2320B	634761		
10492414003	MW9U-GW-092019	SM 2320B	634761		
10492414004	MW9U-GW-092019B	SM 2320B	634761		
10492414006	MW9D-GW-092019	SM 2320B	634761		
10492414002	MW3D-GW-092019	SM 2540C	634605		
10492414003	MW9U-GW-092019	SM 2540C	634900		
10492414004	MW9U-GW-092019B	SM 2540C	634900		
10492414006	MW9D-GW-092019	SM 2540C	634900		
10492414002	MW3D-GW-092019	SM 4500-S-2 D	158847		
10492414003	MW9U-GW-092019	SM 4500-S-2 D	158847		
10492414004	MW9U-GW-092019B	SM 4500-S-2 D	158847		
10492414006	MW9D-GW-092019	SM 4500-S-2 D	158847		
10492414002	MW3D-GW-092019	EPA 300.0	633745		
10492414003	MW9U-GW-092019	EPA 300.0	633745		
10492414004	MW9U-GW-092019B	EPA 300.0	633745		
10492414006	MW9D-GW-092019	EPA 300.0	633745		
10492414002	MW3D-GW-092019	EPA 353.2	634693		
10492414003	MW9U-GW-092019	EPA 353.2	634693		
10492414004	MW9U-GW-092019B	EPA 353.2	634693		
10492414006	MW9D-GW-092019	EPA 353.2	634693		
10492414002	MW3D-GW-092019	EPA 410.4	634118	EPA 410.4	634333
10492414003	MW9U-GW-092019	EPA 410.4	634118	EPA 410.4	634333
10492414004	MW9U-GW-092019B	EPA 410.4	634118	EPA 410.4	634333
10492414006	MW9D-GW-092019	EPA 410.4	634118	EPA 410.4	634333
10492414002	MW3D-GW-092019	SM 5310C	175792		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1497 Freeman, WA-Cenex Harvest

Pace Project No.: 10492414

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492414003	MW9U-GW-092019	SM 5310C	175792		
10492414004	MW9U-GW-092019B	SM 5310C	175792		
10492414006	MW9D-GW-092019	SM 5310C	175792		

REPORT OF LABORATORY ANALYSIS

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Section A Required Client Information:		Section B Report Project Information:		Section C Invoice Information:	
Company: UPRR Jacobs		Report To: Mark Ochsner, Brad Ostapkowicz		Attention: Anne Walsh	
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201		Copy To: Steve Demus, Jonathan Espinoza		Company: UPRR	
Email:		Copy To: David Hodson, UPRR-Sysdat@ghd.com		Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone:		Purchase Order # PEDD# 1497		Page Quote: Contract# 9900758938	
Requested Due Date: 10 Day Standard		Project Name: Freeman WA-Cenex Harvest Lease		Pace Project Manager: Jennifer Gross	
Fax:		Project #: 1497		Pace Profile #: 36447 / 4	
				Regulatory Agency	
				State / Location	
				WA / Freeman	

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique	MATRIX CODE: (see valid codes to left)	SAMPLE TYPE: (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analyses Test	Y/N	Requested Analysis Filtered (Y/N)										MS/MSD Requested
				DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Low Level VOCs by 8260	6010/7/4/0 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate, 300.0			2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorus	8010 Total Iron			
1	TBOG-092019	WTG	G	9/20/19	0800	-	3				X																001			
2	MW3D-GW-092019	WTG	G	9/20/19	0910	-	13	X	X	X	X	X															002			
3	MW 90-GW-092019	WTG	G	9/20/19	1130	-	13	X	X	X	X	X															003			
4	MW 90-GW-092019B	WTG	G	9/20/19	1130	-	13	X	X	X	X	X															004			
5	MW 90-FB-092019	WTG	G	9/20/19	1130	-	3				X																005			
6	MW 9D-GW-092019	WTG	G	9/20/19	1235	-	13	X	X	X	X	X															006			
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Short hold analyses are in bold	KLG / Jacobs	9/19/19	1430	JL Mac	9/21/19	930	0.4	Y	Y	Y
*Field filtered by client										

SAMPLER NAME AND SIGNATURE		T1-MP in C Received on (Y/N) Sealed in cooler (Y/N) Surplus used (Y/N)
PRINT Name of SAMPLER: Kara Savage	SIGNATURE of SAMPLER: <i>[Signature]</i>	
DATE Signed: 9/20/19		



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.29

Document Revised: 23Aug2019
Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name:

Project #:

WO#: 10492414

PM: JMG

Due Date: 10/07/19

CLIENT: UPRR_Jacobs

Courier:

Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 4638 01a9 4961

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: VB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 0.4 °C Average Corrected Temp (no temp blank only): See Exceptions 1 Container

Correction Factor: TRV4 Cooler Temp Corrected w/temp blank: 0.4 °C

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: SS 9/21/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>2-4, 6: 4, 4, 4</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: <u>VOA</u> , Coliform, <u>TOC/DOC</u> Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	pH Paper Lot# <input type="checkbox"/>
		Res. Chlorine 0-6 Roll <u>203619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>224201</u>
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____

JENNI GROSS

Date: 09/23/19

Note: Whenever there is a discrepancy affecting hold, incorrect preservative, out of temp, incorrect containers).

ompliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of

Labeled by: _____

SS (2)



Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10492414 Workorder Name: 1497 Freeman,WA-Cenex Harvest

Owner Received Date: 9/21/2019 Results Requested By: 10/7/2019

Report To		Subcontract To				Requested Analysis																																
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				<div style="display: flex; justify-content: space-between;"> 5632354 / 5310 TOC LAB USE ONLY </div>																																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix													Preserved Containers																				
																		H304 DG95																				
1	MW3D-GW-092019	PS	9/20/2019 09:10	10492414002	Water													2																				
2	MW9U-GW-092019	PS	9/20/2019 11:30	10492414003	Water													2																				
3	MW9U-GW-092019B	PS	9/20/2019 11:30	10492414004	Water	2																																
4	MW9D-GW-092019	PS	9/20/2019 12:35	10492414006	Water	2																																
5																																						
Transfers												Comments																										
Transfers	Released By		Date/Time	Received By		Date/Time																																
1	<i>[Signature]</i>		9/23/19 1810	<i>[Signature]</i>		9/23/19 1900																																
2	<i>[Signature]</i>		9/23/19 2330	<i>[Signature]</i>		9/24/19 0630																																
3																																						
Cooler Temperature on Receipt 9.6 °C			Custody Seal <input checked="" type="checkbox"/> or N			Received on Ice <input checked="" type="checkbox"/> or N			Samples Intact <input checked="" type="checkbox"/> or N																													

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace WA

Project #:

WO#: 12135903
 PM: RK1 Due Date: 10/07/19
 CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.3 Cooler Temp Corrected °C: 0.6 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 9/23/19 DC

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WJ</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Bm 9/24/19

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lavonia Ferri

Date: 9/24/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

WO#: 20122781



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No

Workorder: 10492414 Workorder Name: 1497 Freeman, WA-Cenex Harvest

Owner Received Date: 9/21/2019 Results Requested By: 10/7/2019

Report To		Subcontract To				Requested Analysis																								
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333				5636267 / 4500 Sulfide																								
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix											Preserved Containers				LAB USE ONLY										
1	MW3D-GW-092019	PS	9/20/2019 09:10	10492414002	Water											1														
2	MW9U-GW-092019	PS	9/20/2019 11:30	10492414003	Water											1														
3	MW9U-GW-092019B	PS	9/20/2019 11:30	10492414004	Water											1														
4	MW9D-GW-092019	PS	9/20/2019 12:35	10492414006	Water	1																								
5																														
Transfers											Comments																			
Released By	Date/Time	Received By	Date/Time																											
<i>nla / Pac</i>	<i>9/20/19 1720</i>	<i>FY</i>																												
<i>FY</i>		<i>K. Seely</i>	<i>9/24/19</i>																											
Cooler Temperature on Receipt <i>0</i> °C		Custody Seal <input checked="" type="checkbox"/> or N		Received on Ice <input checked="" type="checkbox"/> or N		Samples Intact <input checked="" type="checkbox"/> or N																								

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 20122781



Sample Condition Upon Rec:

PM: CMM

Due Date: 10/08/19

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Projec

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used:	<input type="checkbox"/> Therm Fisher IR 5
	<input type="checkbox"/> Therm Fisher IR 6
	<input checked="" type="checkbox"/> Therm Fisher IR #10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: <u>10.22.19 CAL</u>

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

H016

Samples were sent directly to the Subcontracting Laboratory.



Workorder: 10492414 Workorder Name: 1497 Freeman, WA-Cenex Harvest

State Of Origin: WA
Cert. Needed: Yes No
Owner Received Date: 9/21/2019 Results Requested By: 10/7/2019

Report To	Subcontract To	Requested Analysis
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710	

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					5644436 / Headspace Analysis	LAB USE ONLY	
						VSG							
1	MW3D-GW-092019	PS	9/20/2019 09:10	10492414002	Water	3							
2	MW9U-GW-092019	PS	9/20/2019 11:30	10492414003	Water	3					X		
3	MW9U-GW-092019B	PS	9/20/2019 11:30	10492414004	Water	3					X		-01
4	MW9D-GW-092019	PS	9/20/2019 12:35	10492414006	Water	3					X		02
5											X		03

1142416

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	9/23/19 16:15	<i>[Signature]</i>	9/24/19 9:00	SHORT HOLD
2					
3					

Cooler Temperature on Receipt 0.1 °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

O. Y. 3001
A3M

4638 0200 1007

RAD SCREEN: <0.5 mR/hr

Monday, September 23, 2019 1:26:40 PM

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	<i>PACETWA</i>	SDG#:	<i>11424/16</i>
Cooler Received/Opened On:	<i>9/24/19</i>	Temperature:	<i>0.1</i>
Received By:	Hailey Melson		
Signature:	<i>Hailey Melson</i>		
		NP	Yes No
Receipt Check List			
COC Seal Present / Intact?			<input checked="" type="checkbox"/>
COC Signed / Accurate?			<input checked="" type="checkbox"/>
Bottles arrive intact?			<input checked="" type="checkbox"/>
Correct bottles used?			<input checked="" type="checkbox"/>
Sufficient volume sent?			<input type="checkbox"/>
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

October 01, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

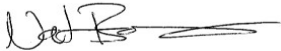
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10492667

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nathan Boberg
nathan.boberg@pacelabs.com
(612)360-0728
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10492667001	DAVEY-AA1-091919	Air	09/20/19 10:17	09/24/19 09:40
10492667002	DAVEY-AA1-091919 cert 3370	Air	09/20/19 10:17	09/24/19 09:40
10492667003	DAVEY-AA2-091919	Air	09/20/19 10:20	09/24/19 09:40
10492667004	DAVEY-AA2-091919 cert 2048	Air	09/20/19 10:20	09/24/19 09:40
10492667005	DAVEY-IA1-091919	Air	09/20/19 10:18	09/24/19 09:40
10492667006	DAVEY-IA1-091919 cert 3363	Air	09/20/19 10:18	09/24/19 09:40
10492667007	DAVEY-IA2-091919	Air	09/20/19 10:19	09/24/19 09:40
10492667008	DAVEY-IA2-091919 cert 3318	Air	09/20/19 10:19	09/24/19 09:40
10492667009	DAVEY-IA3-091919	Air	09/20/19 10:19	09/24/19 09:40
10492667010	DAVEY-IA3-091919 cert 2382	Air	09/20/19 10:19	09/24/19 09:40
10492667011	DAVEY-IA4-091919	Air	09/20/19 10:21	09/24/19 09:40
10492667012	DAVEY-IA4-091919 cert 2825	Air	09/20/19 10:21	09/24/19 09:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10492667001	DAVEY-AA1-091919	TO-15	NCK	2	PASI-M
10492667002	DAVEY-AA1-091919 cert 3370	TO-15	NCK	2	PASI-M
10492667003	DAVEY-AA2-091919	TO-15	NCK	2	PASI-M
10492667004	DAVEY-AA2-091919 cert 2048	TO-15	NCK	2	PASI-M
10492667005	DAVEY-IA1-091919	TO-15	NCK	2	PASI-M
10492667006	DAVEY-IA1-091919 cert 3363	TO-15	NCK	2	PASI-M
10492667007	DAVEY-IA2-091919	TO-15	NCK	2	PASI-M
10492667008	DAVEY-IA2-091919 cert 3318	TO-15	NCK	2	PASI-M
10492667009	DAVEY-IA3-091919	TO-15	NCK	2	PASI-M
10492667010	DAVEY-IA3-091919 cert 2382	TO-15	NCK	2	PASI-M
10492667011	DAVEY-IA4-091919	TO-15	NCK	2	PASI-M
10492667012	DAVEY-IA4-091919 cert 2825	TO-15	NCK	2	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10492667001	DAVEY-AA1-091919					
TO-15	Chloroform	0.15	ug/m3	0.080	09/24/19 18:59	
TO-15	Carbon tetrachloride	0.67	ug/m3	0.10	09/24/19 18:59	
10492667003	DAVEY-AA2-091919					
TO-15	Carbon tetrachloride	0.47	ug/m3	0.10	09/24/19 19:57	
TO-15	Chloroform	0.14	ug/m3	0.080	09/24/19 19:57	
10492667005	DAVEY-IA1-091919					
TO-15	Carbon tetrachloride	0.60	ug/m3	0.11	09/24/19 20:26	
TO-15	Chloroform	0.10	ug/m3	0.083	09/24/19 20:26	
10492667007	DAVEY-IA2-091919					
TO-15	Carbon tetrachloride	0.63	ug/m3	0.11	09/24/19 20:55	
TO-15	Chloroform	0.11	ug/m3	0.083	09/24/19 20:55	
10492667009	DAVEY-IA3-091919					
TO-15	Carbon tetrachloride	0.59	ug/m3	0.13	09/24/19 21:25	
TO-15	Chloroform	0.11	ug/m3	0.10	09/24/19 21:25	
10492667011	DAVEY-IA4-091919					
TO-15	Carbon tetrachloride	0.74	ug/m3	0.11	09/24/19 21:54	
TO-15	Chloroform	0.18	ug/m3	0.083	09/24/19 21:54	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Method: TO-15

Description: TO15 MSV AIR SIM SCAN

Client: UPRR_Jacobs

Date: October 01, 2019

General Information:

12 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-AA1-091919 **Lab ID: 10492667001** Collected: 09/20/19 10:17 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Chloroform	0.15	ug/m3	0.080	0.047	1.61		09/24/19 18:59	67-66-3	
Carbon tetrachloride	0.67	ug/m3	0.10	0.068	1.61		09/24/19 18:59	56-23-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-AA1-091919 cert **Lab ID: 10492667002** Collected: 09/20/19 10:17 Received: 09/24/19 09:40 Matrix: Air
3370

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/06/19 22:45	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/06/19 22:45	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-AA2-091919 **Lab ID: 10492667003** Collected: 09/20/19 10:20 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.47	ug/m3	0.10	0.068	1.61		09/24/19 19:57	56-23-5	
Chloroform	0.14	ug/m3	0.080	0.047	1.61		09/24/19 19:57	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-AA2-091919 cert **Lab ID: 10492667004** Collected: 09/20/19 10:20 Received: 09/24/19 09:40 Matrix: Air
2048

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/07/19 01:35	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/07/19 01:35	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA1-091919 **Lab ID: 10492667005** Collected: 09/20/19 10:18 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.60	ug/m3	0.11	0.071	1.68		09/24/19 20:26	56-23-5	
Chloroform	0.10	ug/m3	0.083	0.049	1.68		09/24/19 20:26	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA1-091919 cert **Lab ID:** 10492667006 Collected: 09/20/19 10:18 Received: 09/24/19 09:40 Matrix: Air
3363

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 11:41	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 11:41	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA2-091919 **Lab ID: 10492667007** Collected: 09/20/19 10:19 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.63	ug/m3	0.11	0.071	1.68		09/24/19 20:55	56-23-5	
Chloroform	0.11	ug/m3	0.083	0.049	1.68		09/24/19 20:55	67-66-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA2-091919 cert **Lab ID:** 10492667008 Collected: 09/20/19 10:19 Received: 09/24/19 09:40 Matrix: Air
3318

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/06/19 22:17	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/06/19 22:17	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA3-091919 **Lab ID: 10492667009** Collected: 09/20/19 10:19 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.59	ug/m3	0.13	0.084	2.01		09/24/19 21:25	56-23-5	
Chloroform	0.11	ug/m3	0.10	0.058	2.01		09/24/19 21:25	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA3-091919 cert **Lab ID:** 10492667010 Collected: 09/20/19 10:19 Received: 09/24/19 09:40 Matrix: Air
2382

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/07/19 03:30	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/07/19 03:30	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA4-091919 **Lab ID: 10492667011** Collected: 09/20/19 10:21 Received: 09/24/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.74	ug/m3	0.11	0.071	1.68		09/24/19 21:54	56-23-5	
Chloroform	0.18	ug/m3	0.083	0.049	1.68		09/24/19 21:54	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Sample: DAVEY-IA4-091919 cert **Lab ID:** 10492667012 Collected: 09/20/19 10:21 Received: 09/24/19 09:40 Matrix: Air
2825

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/06/19 23:14	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/06/19 23:14	67-66-3	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

QC Batch: 634322

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR SIM SCAN

Associated Lab Samples: 10492667001, 10492667003, 10492667005, 10492667007, 10492667009, 10492667011

METHOD BLANK: 3419122

Matrix: Air

Associated Lab Samples: 10492667001, 10492667003, 10492667005, 10492667007, 10492667009, 10492667011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	<0.042	0.064	0.042	09/24/19 18:30	
Chloroform	ug/m3	<0.029	0.050	0.029	09/24/19 18:30	

LABORATORY CONTROL SAMPLE: 3419123

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	0.64	0.48	75	61-135	
Chloroform	ug/m3	0.5	0.53	107	70-130	

SAMPLE DUPLICATE: 3419488

Parameter	Units	10492667001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	0.67	0.66	2	25	
Chloroform	ug/m3	0.15	0.15	3	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10492667

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10492667001	DAVEY-AA1-091919	TO-15	634322		
10492667002	DAVEY-AA1-091919 cert 3370	TO-15	635277		
10492667003	DAVEY-AA2-091919	TO-15	634322		
10492667004	DAVEY-AA2-091919 cert 2048	TO-15	635277		
10492667005	DAVEY-IA1-091919	TO-15	634322		
10492667006	DAVEY-IA1-091919 cert 3363	TO-15	635277		
10492667007	DAVEY-IA2-091919	TO-15	634322		
10492667008	DAVEY-IA2-091919 cert 3318	TO-15	635277		
10492667009	DAVEY-IA3-091919	TO-15	634322		
10492667010	DAVEY-IA3-091919 cert 2382	TO-15	635277		
10492667011	DAVEY-IA4-091919	TO-15	634322		
10492667012	DAVEY-IA4-091919 cert 2825	TO-15	635277		

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AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

46900

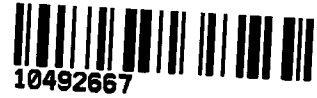
Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: UPRR-JACOBS		Report To: Mark Ohmer, Brad Ostapewicz		Attention: Anne Walsh @UP, Awalsh@up.com	
Address: 1400 W 52ND AVE DENVER, CO 80221		Copy To: Steve Demos, John Espinoza David Hudson, UPRR-Sysdata@GAD.com		Company Name: UPRR	
Email To: Awalsh@up.com		Purchase Order No.: 1492-38 Rev 0		Address: 1400 W 52ND AVE, DENVER, CO 80221	
Phone: _____ Fax: _____		Project Name: Freeman Mill - Cerex Harvest Area		Pace Quote Reference: _____	
Requested Due Date/TAT: _____		Project Number: _____		Pace Project Manager/Sales Rep. _____	
				Pace Profile #: 37080	

Program	
<input type="checkbox"/> UST	<input type="checkbox"/> Superfund
<input type="checkbox"/> Emissions	<input type="checkbox"/> Clean Air Act
<input checked="" type="checkbox"/> Voluntary Clean Up	<input type="checkbox"/> Dry Clean
<input type="checkbox"/> RCRA	<input type="checkbox"/> Other
Location of Sampling by State: WA	
Reporting Units ug/m ³ <input checked="" type="checkbox"/> mg/m ³ _____ PPBV _____ PPMV _____ Other _____	
Report Level: <u>II</u> <input type="checkbox"/> <u>III</u> <input type="checkbox"/> <u>IV</u> <input type="checkbox"/> Other _____	

ITEM #	Section D Required Client Information AIR SAMPLE ID Sample IDs MUST BE UNIQUE	Valid Media Codes MEDIA CODE Tedlar Bag TB 1 Liter Summa Can 1LC 6 Liter Summa Can 6LC Low Volume Puff LVP High Volume Puff HVP Other PM10	MEDIA CODE	PID Reading (Client only)	COLLECTED				Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10 3C - Fixed Gas (%) TO-2 BTEX TO-3M (Methane) TO-14 TO-15 Full List VOCs TO-15 Short List BTEX TO-15 Short List Chlorinated	Pace Lab ID
					COMPOSITE START		COMPOSITE - END/GRAB							
					DATE	TIME	DATE	TIME						
1	DAVEY-AA1-091919	6LC	0	9/19/19	1257	9/20/19	1017	-30	-5.5	3370	1384	X	001, 002	
2	DAVEY-AA2-091919	6LC	0	9/19/19	1301	9/20/19	1020	-28	-4.5	2048	1358	X	003, 004	
3	DAVEY-AA7-091919	6LC	0	9/19/19	1308	9/20/19	1018	-28	-5.5	3363	0001	X	005, 006	
4	DAVEY-IA2-091919	6LC	0	9/19/19	1314	9/20/19	1019	-27.5	-5.5	3318	1461	X	007, 008	
5	DAVEY-IA3-091919	6LC	0	9/19/19	1319	9/20/19	1019	-30	-10.5	2382	0124	X	009, 010	
6	DAVEY-IA4-091919	6LC	0	9/19/19	1329	9/20/19	1021	-28	-5.5	2825	1425	X	011, 012	
7														
8														
9														
10														
11														
12														

WO#: 10492667



Comments:
TO-15 SIM
ONLY ANALYZE FOR:
• CHLOROFORM
• CARBON TETRACHLORIDE

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
<i>[Signature]</i>	9/20/19	1700	LS-PACE	9/20/19	9:40	-	Y/N	Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
PRINT Name of SAMPLER: MARK GREEN					
SIGNATURE of SAMPLER: <i>[Signature]</i> DATE Signed (MM/DD/YY): 9/20/19					

ORIGINAL



Document Name:
Air Sample Condition Upon Receipt
Document No.:
F-MN-A-106-rev.18

Document Revised: 31Jan2019
Page 1 of 1
Issuing Authority:
Missouri Quality Office

Air Sample Condition Upon Receipt

Client Name: UPRR

Project #:

WO# : 10492667

PM: NB3

Due Date: 10/01/19

CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial See Exception

Tracking Number: 1083 0280 5513

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Tin Can Other: _____ Temp Blank rec: Yes No

Temp. (TO17 and TO13 samples only) (°C): _____ Corrected Temp (°C): _____

Thermometer Used: G87A9170600254
 G87A9155100842

Temp should be above freezing to 6°C Correction Factor: _____ Date & Initials of Person Examining Contents: 9/24/19 J

Type of ice Received Blue Wet None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11. Individually Certified Cans <u>Y</u> N (list which samples) <u>All samples</u>
Is sufficient information available to reconcile samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13.

Samples Received:					Pressure Gauge # <input checked="" type="checkbox"/> 10AIR34 <input type="checkbox"/> 10AIR35				
Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
AA-1	3370	1384	-5	5					
AA-2	2048	1358	-5	11					
IA-1	3863	0001	-6	11					
IA-2	3318	1461	-6	11					
IA-3	2382	0124	-6	11					
IA-4	2825	1425	-6	11					

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Walter B...

Date: 10/1/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

October 09, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612


RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10493761

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nathan Boberg
nathan.boberg@pacelabs.com
(612)360-0728
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10493761001	Davey2-AA1-092619	Air	09/27/19 08:33	10/02/19 09:40
10493761002	Davey2-AA1-092619 cert 3371	Air	09/27/19 08:33	10/02/19 09:40
10493761003	Davey2-AA2-092619	Air	09/27/19 08:35	10/02/19 09:40
10493761004	Davey2-AA2-092619 cert 3586	Air	09/27/19 08:35	10/02/19 09:40
10493761005	Davey2-IA1-092619	Air	09/27/19 08:40	10/02/19 09:40
10493761006	Davey2-IA1-092619 cert 3635	Air	09/27/19 08:40	10/02/19 09:40
10493761007	Davey2-IA2-092619	Air	09/27/19 08:41	10/02/19 09:40
10493761008	Davey2-IA2-092619 cert 2123	Air	09/27/19 08:41	10/02/19 09:40
10493761009	Davey2-IA3-092619	Air	09/27/19 08:42	10/02/19 09:40
10493761010	Davey2-IA3-092619 cert 2114	Air	09/27/19 08:42	10/02/19 09:40
10493761011	Davey2-IA4-092619	Air	09/27/19 08:35	10/02/19 09:40
10493761012	Davey2-IA4-092619 cert 3456	Air	09/27/19 08:35	10/02/19 09:40
10493761013	Davey2-FD-092619	Air	09/27/19 07:00	10/02/19 09:40
10493761014	Davey2-FD-092619 cert 2812	Air	09/27/19 07:00	10/02/19 09:40

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10493761001	Davey2-AA1-092619	TO-15	NCK	2	PASI-M
10493761002	Davey2-AA1-092619 cert 3371	TO-15	NCK	2	PASI-M
10493761003	Davey2-AA2-092619	TO-15	NCK	2	PASI-M
10493761004	Davey2-AA2-092619 cert 3586	TO-15	NCK	2	PASI-M
10493761005	Davey2-IA1-092619	TO-15	NCK	2	PASI-M
10493761006	Davey2-IA1-092619 cert 3635	TO-15	NCK	2	PASI-M
10493761007	Davey2-IA2-092619	TO-15	NCK	2	PASI-M
10493761008	Davey2-IA2-092619 cert 2123	TO-15	NCK	2	PASI-M
10493761009	Davey2-IA3-092619	TO-15	NCK	2	PASI-M
10493761010	Davey2-IA3-092619 cert 2114	TO-15	NCK	2	PASI-M
10493761011	Davey2-IA4-092619	TO-15	NCK	2	PASI-M
10493761012	Davey2-IA4-092619 cert 3456	TO-15	NCK	2	PASI-M
10493761013	Davey2-FD-092619	TO-15	NCK	2	PASI-M
10493761014	Davey2-FD-092619 cert 2812	TO-15	NCK	2	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10493761001	Davey2-AA1-092619					
TO-15	Carbon tetrachloride	0.73	ug/m3	0.12	10/04/19 01:56	
TO-15	Chloroform	0.13	ug/m3	0.091	10/04/19 01:56	
10493761003	Davey2-AA2-092619					
TO-15	Carbon tetrachloride	0.58	ug/m3	0.12	10/04/19 02:25	
TO-15	Chloroform	0.12	ug/m3	0.091	10/04/19 02:25	
10493761005	Davey2-IA1-092619					
TO-15	Carbon tetrachloride	0.61	ug/m3	0.12	10/04/19 02:53	
TO-15	Chloroform	0.13	ug/m3	0.093	10/04/19 02:53	
10493761007	Davey2-IA2-092619					
TO-15	Carbon tetrachloride	0.49	ug/m3	0.12	10/04/19 03:22	
TO-15	Chloroform	0.11	ug/m3	0.095	10/04/19 03:22	
10493761009	Davey2-IA3-092619					
TO-15	Carbon tetrachloride	0.54	ug/m3	0.12	10/04/19 03:51	
TO-15	Chloroform	0.11	ug/m3	0.091	10/04/19 03:51	
10493761011	Davey2-IA4-092619					
TO-15	Carbon tetrachloride	0.67	ug/m3	0.12	10/04/19 04:20	
TO-15	Chloroform	0.14	ug/m3	0.091	10/04/19 04:20	
10493761013	Davey2-FD-092619					
TO-15	Carbon tetrachloride	0.52	ug/m3	0.12	10/07/19 17:06	
TO-15	Chloroform	0.15	ug/m3	0.093	10/07/19 17:06	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Method: TO-15

Description: TO15 MSV AIR SIM SCAN

Client: UPRR_Jacobs

Date: October 09, 2019

General Information:

14 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-AA1-092619 **Lab ID: 10493761001** Collected: 09/27/19 08:33 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.73	ug/m3	0.12	0.077	1.83		10/04/19 01:56	56-23-5	
Chloroform	0.13	ug/m3	0.091	0.053	1.83		10/04/19 01:56	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-AA1-092619 cert **Lab ID:** 10493761002 Collected: 09/27/19 08:33 Received: 10/02/19 09:40 Matrix: Air
3371

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 22:14	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 22:14	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-AA2-092619 **Lab ID: 10493761003** Collected: 09/27/19 08:35 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.58	ug/m3	0.12	0.077	1.83		10/04/19 02:25	56-23-5	
Chloroform	0.12	ug/m3	0.091	0.053	1.83		10/04/19 02:25	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-AA2-092619 cert **Lab ID:** 10493761004 Collected: 09/27/19 08:35 Received: 10/02/19 09:40 Matrix: Air
3586

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 11:13	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 11:13	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA1-092619 **Lab ID: 10493761005** Collected: 09/27/19 08:40 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.61	ug/m3	0.12	0.079	1.87		10/04/19 02:53	56-23-5	
Chloroform	0.13	ug/m3	0.093	0.054	1.87		10/04/19 02:53	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA1-092619 cert **Lab ID:** 10493761006 Collected: 09/27/19 08:40 Received: 10/02/19 09:40 Matrix: Air
3635

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/07/19 02:32	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/07/19 02:32	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA2-092619 **Lab ID: 10493761007** Collected: 09/27/19 08:41 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.49	ug/m3	0.12	0.081	1.92		10/04/19 03:22	56-23-5	
Chloroform	0.11	ug/m3	0.095	0.056	1.92		10/04/19 03:22	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA2-092619 cert **Lab ID:** 10493761008 Collected: 09/27/19 08:41 Received: 10/02/19 09:40 Matrix: Air
2123

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 21:18	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 21:18	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA3-092619 **Lab ID: 10493761009** Collected: 09/27/19 08:42 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.54	ug/m3	0.12	0.077	1.83		10/04/19 03:51	56-23-5	
Chloroform	0.11	ug/m3	0.091	0.053	1.83		10/04/19 03:51	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA3-092619 cert **Lab ID:** 10493761010 Collected: 09/27/19 08:42 Received: 10/02/19 09:40 Matrix: Air
2114

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 19:53	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 19:53	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA4-092619 **Lab ID: 10493761011** Collected: 09/27/19 08:35 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.67	ug/m3	0.12	0.077	1.83		10/04/19 04:20	56-23-5	
Chloroform	0.14	ug/m3	0.091	0.053	1.83		10/04/19 04:20	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-IA4-092619 cert **Lab ID:** 10493761012 Collected: 09/27/19 08:35 Received: 10/02/19 09:40 Matrix: Air
3456

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/09/19 17:32	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/09/19 17:32	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-FD-092619 **Lab ID: 10493761013** Collected: 09/27/19 07:00 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN		Analytical Method: TO-15							
Carbon tetrachloride	0.52	ug/m3	0.12	0.079	1.87		10/07/19 17:06	56-23-5	
Chloroform	0.15	ug/m3	0.093	0.054	1.87		10/07/19 17:06	67-66-3	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Sample: Davey2-FD-092619 cert 2812 **Lab ID: 10493761014** Collected: 09/27/19 07:00 Received: 10/02/19 09:40 Matrix: Air

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN									
	Analytical Method: TO-15								
Carbon tetrachloride	<0.042	ug/m3	0.064	0.042	1		09/06/19 23:42	56-23-5	
Chloroform	<0.029	ug/m3	0.050	0.029	1		09/06/19 23:42	67-66-3	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

QC Batch: 636191

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR SIM SCAN

Associated Lab Samples: 10493761001, 10493761003, 10493761005, 10493761007, 10493761009, 10493761011

METHOD BLANK: 3428488

Matrix: Air

Associated Lab Samples: 10493761001, 10493761003, 10493761005, 10493761007, 10493761009, 10493761011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	<0.042	0.064	0.042	10/03/19 19:12	
Chloroform	ug/m3	<0.029	0.050	0.029	10/03/19 19:12	

LABORATORY CONTROL SAMPLE: 3428489

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	0.66	0.59	89	61-135	
Chloroform	ug/m3	0.53	0.48	91	70-130	

SAMPLE DUPLICATE: 3429442

Parameter	Units	10493427001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	0.61	0.58	4	25	
Chloroform	ug/m3	0.19	0.18	8	25	

SAMPLE DUPLICATE: 3429443

Parameter	Units	10493427003 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	0.50	0.51	1	25	
Chloroform	ug/m3	0.15	0.15	0	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

QC Batch: 636776

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR SIM SCAN

Associated Lab Samples: 10493761013

METHOD BLANK: 3431884

Matrix: Air

Associated Lab Samples: 10493761013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	<0.042	0.064	0.042	10/07/19 10:36	
Chloroform	ug/m3	<0.029	0.050	0.029	10/07/19 10:36	

LABORATORY CONTROL SAMPLE: 3431885

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	0.64	0.73	114	61-135	
Chloroform	ug/m3	0.5	0.56	113	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10493761

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10493761001	Davey2-AA1-092619	TO-15	636191		
10493761002	Davey2-AA1-092619 cert 3371	TO-15	636954		
10493761003	Davey2-AA2-092619	TO-15	636191		
10493761004	Davey2-AA2-092619 cert 3586	TO-15	636954		
10493761005	Davey2-IA1-092619	TO-15	636191		
10493761006	Davey2-IA1-092619 cert 3635	TO-15	636954		
10493761007	Davey2-IA2-092619	TO-15	636191		
10493761008	Davey2-IA2-092619 cert 2123	TO-15	636954		
10493761009	Davey2-IA3-092619	TO-15	636191		
10493761010	Davey2-IA3-092619 cert 2114	TO-15	636954		
10493761011	Davey2-IA4-092619	TO-15	636191		
10493761012	Davey2-IA4-092619 cert 3456	TO-15	636954		
10493761013	Davey2-FD-092619	TO-15	636776		
10493761014	Davey2-FD-092619 cert 2812	TO-15	636954		

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AIR: CHAIN-OF-CUSTODY /

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant

WO#: 10493761



46899

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: UPRR - Jacobs	Report To: Mark Ochsner, Brad Ostapik	Attention: Anne Walsh (awalsh@upr.com)
Address: 1400 W. 52nd Ave Denver, CO 80221	Copy To: Steve Demus, Jon Espinoza	Company Name: UPRR
Email To: awalsh@upr.com	David Hodson, UPRR-Sysdat@gnl	Address: 1400 W. 52nd Ave, Denver CO 80221
Phone: _____ Fax: _____	Purchase Order No.: _____	Pace Quote Reference: _____
Requested Due Date/TAT: _____	Project Name: Freeman, WA - ienex Harvest Loop	Pace Project Manager/Sales Rep. _____
	Project Number: _____	Pace Profile #: 37080

Program	
<input type="checkbox"/> UST <input type="checkbox"/> Superfund <input type="checkbox"/> Emissions <input type="checkbox"/> Clean Air Act	
<input checked="" type="checkbox"/> Voluntary Clean Up <input type="checkbox"/> Dry Clean <input type="checkbox"/> RCRA <input type="checkbox"/> Other _____	
Location of Sampling by State: WA	Reporting Units ug/m ³ <input checked="" type="checkbox"/> mg/m ³ _____ PPBV _____ PPMV _____ Other _____
Report Level: II: _____ III: _____ IV: _____ Other _____	

ITEM #	Section D Required Client Information AIR SAMPLE ID Sample IDs MUST BE UNIQUE	Valid Media Codes MEDIA CODE Tedlar Bag TB 1 Liter Summa Can 1LC 6 Liter Summa Can 6LC Low Volume Puff LVP High Volume Puff HVP Other PM10	MEDIA CODE	PID Reading (Client only)	COLLECTED				Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PMT0 3C - Fixed Gas (%) TO-3 BTX TO-3M (Methane) TO-14 TO-15 Full List VOCs TO-15 Short List BTX TO-15 Short List Chlorinated	Pace Lab ID
					COMPOSITE START		COMPOSITE - END/GRAB							
					DATE	TIME	DATE	TIME						
1	Davey 2-AA1-092619	WLC	0	9/26/19	1343	9/27/19	0833	-27	-7	3371	1446	X	001,002	
2	Davey 2-AA2-092619	WLC	0	9/26/19	1345	9/27/19	0835	-26	-6	3586	0288	X	003,004	
3	Davey 2-IA1-092619	WLC	0	9/26/19	1342	9/27/19	0840	-27	-7	3635	1846	X	005,006	
4	Davey 2-IA2-092619	WLC	0	9/26/19	1342	9/27/19	0841	-28	-8	2123	0849	X	007,008	
5	Davey 2-IA3-092619	WLC	0	9/26/19	1340	9/27/19	0842	-30	-8	2114	0874	X	009,010	
6	Davey 2-IA4-092619	WLC	0	9/26/19	1346	9/27/19	0835	-29	-8.5	3456	1900	X	011,012	
7	Davey 2-FD-092619	WLC	0	9/24/19	0700	9/27/19	0700	-29	-7.5	2812	2274	X	013,014	
8														
9														
10														
11														
12														

Comments: TO-15 SIM ONLY ANALYZE FOR: Chloroform Carbon tetrachloride ORIGINAL ⌘	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>[Signature]</i> / Jacobs	9/30/19	1400	<i>[Signature]</i> / PACE	10/2/19	940	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
SAMPLER NAME AND SIGNATURE										
PRINT Name of SAMPLER: Kaila Savage										
SIGNATURE of SAMPLER: <i>[Signature]</i>							DATE Signed (MM / DD / YY)	09/30/19		

Page 25 of 26



Document Name:
Air Sample Condition Upon Receipt
Document No.:
F-MN-A-106-rev.18

Document Revised: 31Jan2019
Page 1 of 1
Issuing Authority:

Air Sample Condition Upon Receipt

Client Name:
UPRR

Project #:

WO#: 10493761

PM: NB3

Due Date: 10/09/19

CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial See Exception

Tracking Number: **1083 0280 5502, 5498**

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Tin Can Other: _____ Temp Blank rec: Yes No

Temp. (TO17 and TO13 samples only) (°C): X Corrected Temp (°C): X

Thermometer Used: G87A9170600254
 G87A9155100842

Temp should be above freezing to 6°C Correction Factor: X

Date & Initials of Person Examining Contents: 10/2/19 cmy

Type of ice Received Blue Wet None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11. Individually Certified Cans <input checked="" type="checkbox"/> Y <input type="checkbox"/> N (list which samples)
Is sufficient information available to reconcile samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13.

Samples Received:					Pressure Gauge # <input type="checkbox"/> 10AIR34 <input checked="" type="checkbox"/> 10AIR35				
Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
AA1	3371	1446	-8	15					
AA2	3586	0288	-8	15					
IA1	3635	1846	-8.5	15					
IA2	2123	0849	9	15					
IA3	2114	0874	-8	15					
IA4	3456	1900	-8	15					
PD	2812	2274	-8.5	15					

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

Walter Baberg

Date: 10/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

October 18, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

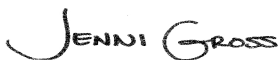
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
 A2LA Certification #: 2926.01
 Alabama Certification #: 40770
 Alaska Contaminated Sites Certification #: 17-009
 Alaska DW Certification #: MN00064
 Arizona Certification #: AZ0014
 Arkansas DW Certification #: MN00064
 Arkansas WW Certification #: 88-0680
 California Certification #: 2929
 CNMI Saipan Certification #: MP0003
 Colorado Certification #: MN00064
 Connecticut Certification #: PH-0256
 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
 Florida Certification #: E87605
 Georgia Certification #: 959
 Guam EPA Certification #: MN00064
 Hawaii Certification #: MN00064
 Idaho Certification #: MN00064
 Illinois Certification #: 200011
 Indiana Certification #: C-MN-01
 Iowa Certification #: 368
 Kansas Certification #: E-10167
 Kentucky DW Certification #: 90062
 Kentucky WW Certification #: 90062
 Louisiana DEQ Certification #: 03086
 Louisiana DW Certification #: MN00064
 Maine Certification #: MN00064
 Maryland Certification #: 322
 Massachusetts Certification #: M-MN064
 Michigan Certification #: 9909
 Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137
 Minnesota Petrofund Certification #: 1240
 Mississippi Certification #: MN00064
 Missouri Certification #: 10100
 Montana Certification #: CERT0092
 Nebraska Certification #: NE-OS-18-06
 Nevada Certification #: MN00064
 New Hampshire Certification #: 2081
 New Jersey Certification #: MN002
 New York Certification #: 11647
 North Carolina DW Certification #: 27700
 North Carolina WW Certification #: 530
 North Dakota Certification #: R-036
 Ohio DW Certification #: 41244
 Ohio VAP Certification #: CL101
 Oklahoma Certification #: 9507
 Oregon Primary Certification #: MN300001
 Oregon Secondary Certification #: MN200001
 Pennsylvania Certification #: 68-00563
 Puerto Rico Certification #: MN00064
 South Carolina Certification #:74003001
 Tennessee Certification #: TN02818
 Texas Certification #: T104704192
 Utah Certification #: MN00064
 Vermont Certification #: VT-027053137
 Virginia Certification #: 460163
 Washington Certification #: C486
 West Virginia DEP Certification #: 382
 West Virginia DW Certification #: 9952 C
 Wisconsin Certification #: 999407970
 Wyoming UST Certification #: via A2LA 2926.01

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
 Montana Certificate #CERT0103
 Alaska Certification UST-107
 Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
 Wisconsin DNR Certification #: 998027470
 WA Department of Ecology Lab ID# C1007

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
 11277CA
 Florida Department of Health (NELAC): E87595
 Illinois Environmental Protection Agency: 0025721
 Kansas Department of Health and Environment (NELAC):
 E-10266
 Louisiana Dept. of Environmental Quality (NELAC/LELAP):
 02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
 Texas Commission on Env. Quality (NELAC):
 T104704405-09-TX
 U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119
 Commonwealth of Virginia (TNI): 480246

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494124001	Trip Blank	Water	10/03/19 07:00	10/04/19 08:50
10494124002	FD4-GW-100319	Water	10/03/19 10:48	10/04/19 08:50
10494124003	Asher-GW-100319	Water	10/03/19 10:00	10/04/19 08:50
10494124004	Lashaw-GW-100319	Water	10/03/19 10:45	10/04/19 08:50
10494124005	LashawAg-GW-100319	Water	10/03/19 11:45	10/04/19 08:50
10494124006	Silva-GW-100319	Water	10/03/19 09:15	10/04/19 08:50
10494124007	Reed-GW-100319	Water	10/03/19 13:30	10/04/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494124001	Trip Blank	EPA 8260B	DS2	83	PASI-M
10494124002	FD4-GW-100319	RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10494124003	Asher-GW-100319	RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10494124004	Lashaw-GW-100319	RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10494124005	LashawAg-GW-100319	RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494124006	Silva-GW-100319	SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
		RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
10494124007	Reed-GW-100319	SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
		RSK 175	AH2	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10494124002	FD4-GW-100319					
EPA 6010D	Barium, Dissolved	9.2J	ug/L	10.0	10/17/19 10:46	
EPA 6010D	Copper, Dissolved	3.4J	ug/L	10.0	10/17/19 10:46	
EPA 6010D	Vanadium, Dissolved	11.2J	ug/L	15.0	10/17/19 10:46	
EPA 6010D	Zinc, Dissolved	174	ug/L	20.0	10/17/19 10:46	
EPA 8260B	Carbon tetrachloride	0.51	ug/L	0.50	10/10/19 02:45	
SM 2320B	Alkalinity, Total as CaCO3	150	mg/L	5.0	10/17/19 09:32	
SM 2540C	Total Dissolved Solids	212	mg/L	10.0	10/09/19 14:29	
EPA 300.0	Chloride	1.8	mg/L	1.2	10/04/19 21:34	
EPA 300.0	Nitrate as N	2.8	mg/L	0.10	10/04/19 21:34	
EPA 300.0	Sulfate	6.9	mg/L	1.2	10/04/19 21:34	
EPA 353.2	Nitrogen, NO2 plus NO3	2.8	mg/L	0.50	10/12/19 14:52	
SM 5310C	Total Organic Carbon	0.58J	mg/L	1.0	10/08/19 17:47	
10494124003	Asher-GW-100319					
EPA 6010D	Barium, Dissolved	71.1	ug/L	10.0	10/17/19 10:48	
EPA 6010D	Beryllium, Dissolved	0.15J	ug/L	5.0	10/17/19 10:48	
EPA 6010D	Chromium, Dissolved	0.85J	ug/L	10.0	10/17/19 10:48	
EPA 6010D	Cobalt, Dissolved	0.62J	ug/L	10.0	10/17/19 10:48	B
EPA 6010D	Copper, Dissolved	92.8	ug/L	10.0	10/17/19 10:48	
EPA 6010D	Thallium, Dissolved	8.7J	ug/L	20.0	10/17/19 10:48	
EPA 6010D	Vanadium, Dissolved	10.4J	ug/L	15.0	10/17/19 10:48	
EPA 6010D	Zinc, Dissolved	45.3	ug/L	20.0	10/17/19 10:48	
SM 2320B	Alkalinity, Total as CaCO3	223	mg/L	5.0	10/17/19 09:36	
SM 2540C	Total Dissolved Solids	345	mg/L	10.0	10/09/19 14:29	
EPA 300.0	Chloride	6.3	mg/L	1.2	10/04/19 21:49	
EPA 300.0	Nitrate as N	7.2	mg/L	0.10	10/04/19 21:49	M1
EPA 300.0	Sulfate	22.3	mg/L	1.2	10/04/19 21:49	M1
EPA 353.2	Nitrogen, NO2 plus NO3	7.2	mg/L	1.0	10/12/19 14:53	
SM 5310C	Total Organic Carbon	1.0J	mg/L	2.0	10/09/19 18:10	
10494124004	Lashaw-GW-100319					
EPA 6010D	Barium, Dissolved	9.6J	ug/L	10.0	10/17/19 10:56	
EPA 6010D	Cobalt, Dissolved	0.61J	ug/L	10.0	10/17/19 10:56	B
EPA 6010D	Copper, Dissolved	3.7J	ug/L	10.0	10/17/19 10:56	
EPA 6010D	Thallium, Dissolved	6.8J	ug/L	20.0	10/17/19 10:56	
EPA 6010D	Vanadium, Dissolved	11.8J	ug/L	15.0	10/17/19 10:56	
EPA 6010D	Zinc, Dissolved	185	ug/L	20.0	10/17/19 10:56	
SM 2320B	Alkalinity, Total as CaCO3	148	mg/L	5.0	10/17/19 10:05	
SM 2540C	Total Dissolved Solids	215	mg/L	10.0	10/09/19 14:29	
EPA 300.0	Chloride	1.8	mg/L	1.2	10/04/19 22:53	
EPA 300.0	Nitrate as N	2.7	mg/L	0.10	10/04/19 22:53	
EPA 300.0	Sulfate	6.8	mg/L	1.2	10/04/19 22:53	
EPA 353.2	Nitrogen, NO2 plus NO3	2.9	mg/L	0.50	10/12/19 14:57	
SM 5310C	Total Organic Carbon	0.57J	mg/L	1.0	10/08/19 18:00	
10494124005	LashawAg-GW-100319					
EPA 6010D	Barium, Dissolved	33.7	ug/L	10.0	10/17/19 10:58	
EPA 6010D	Cobalt, Dissolved	0.83J	ug/L	10.0	10/17/19 10:58	B
EPA 6010D	Copper, Dissolved	2.2J	ug/L	10.0	10/17/19 10:58	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10494124005	LashawAg-GW-100319					
EPA 6010D	Vanadium, Dissolved	3.1J	ug/L	15.0	10/17/19 10:58	
EPA 6010D	Zinc, Dissolved	316	ug/L	20.0	10/17/19 10:58	
SM 2320B	Alkalinity, Total as CaCO3	185	mg/L	5.0	10/17/19 10:08	
SM 2540C	Total Dissolved Solids	234	mg/L	10.0	10/09/19 14:29	
EPA 300.0	Chloride	3.0	mg/L	1.2	10/05/19 00:11	
EPA 300.0	Nitrate as N	0.10	mg/L	0.10	10/05/19 00:11	
EPA 300.0	Sulfate	6.1	mg/L	1.2	10/05/19 00:11	
EPA 353.2	Nitrogen, NO2 plus NO3	0.11	mg/L	0.10	10/12/19 13:18	
SM 5310C	Total Organic Carbon	0.97J	mg/L	2.0	10/09/19 17:57	
10494124006	Silva-GW-100319					
EPA 6010D	Barium, Dissolved	28.6	ug/L	10.0	10/17/19 11:03	
EPA 6010D	Beryllium, Dissolved	0.20J	ug/L	5.0	10/17/19 11:03	
EPA 6010D	Chromium, Dissolved	0.73J	ug/L	10.0	10/17/19 11:03	
EPA 6010D	Cobalt, Dissolved	0.71J	ug/L	10.0	10/17/19 11:03	B
EPA 6010D	Copper, Dissolved	15.6	ug/L	10.0	10/17/19 11:03	
EPA 6010D	Thallium, Dissolved	7.3J	ug/L	20.0	10/17/19 11:03	
EPA 6010D	Vanadium, Dissolved	9.0J	ug/L	15.0	10/17/19 11:03	
EPA 6010D	Zinc, Dissolved	24.1	ug/L	20.0	10/17/19 11:03	
SM 2320B	Alkalinity, Total as CaCO3	174	mg/L	5.0	10/17/19 10:12	
SM 2540C	Total Dissolved Solids	251	mg/L	10.0	10/09/19 14:29	
EPA 300.0	Chloride	2.4	mg/L	1.2	10/05/19 00:27	
EPA 300.0	Nitrate as N	2.4	mg/L	0.10	10/05/19 00:27	
EPA 300.0	Sulfate	11.1	mg/L	1.2	10/05/19 00:27	
EPA 353.2	Nitrogen, NO2 plus NO3	2.5	mg/L	0.50	10/12/19 15:03	
SM 5310C	Total Organic Carbon	1.1	mg/L	1.0	10/08/19 20:56	
10494124007	Reed-GW-100319					
EPA 6010D	Barium, Dissolved	46.2	ug/L	10.0	10/17/19 11:05	
EPA 6010D	Cobalt, Dissolved	1.0J	ug/L	10.0	10/17/19 11:05	B
EPA 6010D	Copper, Dissolved	2.8J	ug/L	10.0	10/17/19 11:05	
EPA 6010D	Vanadium, Dissolved	22.9	ug/L	15.0	10/17/19 11:05	
EPA 6010D	Zinc, Dissolved	25.1	ug/L	20.0	10/17/19 11:05	
SM 2320B	Alkalinity, Total as CaCO3	143	mg/L	5.0	10/17/19 09:47	
SM 2540C	Total Dissolved Solids	193	mg/L	10.0	10/10/19 11:15	
EPA 300.0	Chloride	1.4	mg/L	1.2	10/05/19 00:42	
EPA 300.0	Nitrate as N	0.34	mg/L	0.10	10/05/19 00:42	
EPA 300.0	Sulfate	7.7	mg/L	1.2	10/05/19 00:42	
EPA 353.2	Nitrogen, NO2 plus NO3	0.37	mg/L	0.10	10/12/19 13:23	
SM 5310C	Total Organic Carbon	0.40J	mg/L	1.0	10/08/19 21:09	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: RSK 175

Description: RSK 175 GCV Headspace

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for RSK 175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 637957

B: Analyte was detected in the associated method blank.

- BLANK for HBN 637957 [MPRP/976 (Lab ID: 3439284)]
- Cobalt, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- FD4-GW-100319 (Lab ID: 10494124002)
- Trip Blank (Lab ID: 10494124001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 637340

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3435114)
 - Bromomethane
- MS (Lab ID: 3435115)
 - Bromomethane
- MSD (Lab ID: 3435116)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 18, 2019

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3435115)
 - 2,2,4-Trimethylpentane
 - sec-Butylbenzene
- MSD (Lab ID: 3435116)
 - Chloromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3435116)
 - 2,2,4-Trimethylpentane
 - Hexachloro-1,3-butadiene

Additional Comments:

Analyte Comments:

QC Batch: 637340

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3435113)
 - 1,2-Dichloroethene (Total)
- FD4-GW-100319 (Lab ID: 10494124002)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3435114)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3435115)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3435116)
 - 1,2-Dichloroethene (Total)
- Trip Blank (Lab ID: 10494124001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3435113)
 - Dichlorofluoromethane
- FD4-GW-100319 (Lab ID: 10494124002)
 - Dichlorofluoromethane
- LCS (Lab ID: 3435114)
 - Dichlorofluoromethane
- MS (Lab ID: 3435115)
 - Dichlorofluoromethane
- MSD (Lab ID: 3435116)
 - Dichlorofluoromethane
- Trip Blank (Lab ID: 10494124001)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 160182

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494124003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 719570)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 636406

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494124003,10494124007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3429818)
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3429819)
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 18, 2019

General Information:

6 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Trip Blank Lab ID: 10494124001 Collected: 10/03/19 07:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/09/19 22:47	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/09/19 22:47	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/09/19 22:47	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/09/19 22:47	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/09/19 22:47	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/09/19 22:47	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/09/19 22:47	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/09/19 22:47	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/09/19 22:47	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/09/19 22:47	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/09/19 22:47	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/09/19 22:47	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/09/19 22:47	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/09/19 22:47	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/09/19 22:47	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/09/19 22:47	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/09/19 22:47	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/09/19 22:47	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/09/19 22:47	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/09/19 22:47	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/09/19 22:47	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/09/19 22:47	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/09/19 22:47	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/09/19 22:47	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/09/19 22:47	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/09/19 22:47	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/09/19 22:47	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/09/19 22:47	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/09/19 22:47	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/09/19 22:47	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/09/19 22:47	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/09/19 22:47	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/09/19 22:47	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/09/19 22:47	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/09/19 22:47	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/09/19 22:47	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/09/19 22:47	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/09/19 22:47	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/09/19 22:47	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/09/19 22:47	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/09/19 22:47	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/09/19 22:47	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/09/19 22:47	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/09/19 22:47	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/09/19 22:47	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/09/19 22:47	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Trip Blank **Lab ID:** 10494124001 Collected: 10/03/19 07:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/09/19 22:47	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/09/19 22:47	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/09/19 22:47	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/09/19 22:47	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/09/19 22:47	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/09/19 22:47	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/09/19 22:47	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/09/19 22:47	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/09/19 22:47	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/09/19 22:47	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/09/19 22:47	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/09/19 22:47	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/09/19 22:47	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/09/19 22:47	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/09/19 22:47	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/09/19 22:47	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/09/19 22:47	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/09/19 22:47	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/09/19 22:47	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/09/19 22:47	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/09/19 22:47	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/09/19 22:47	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/09/19 22:47	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/09/19 22:47	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/09/19 22:47	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/09/19 22:47	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/09/19 22:47	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/09/19 22:47	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/09/19 22:47	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/09/19 22:47	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/09/19 22:47	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/09/19 22:47	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/09/19 22:47	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/09/19 22:47	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	75-136		1		10/09/19 22:47	17060-07-0	
Toluene-d8 (S)	94	%	75-125		1		10/09/19 22:47	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		10/09/19 22:47	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: **FD4-GW-100319** Lab ID: **10494124002** Collected: 10/03/19 10:48 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 11:04	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 11:04	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 11:04	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 10:46	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 10:46	7440-38-2	
Barium, Dissolved	9.2J	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 10:46	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 10:46	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 10:46	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 10:46	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 10:46	7440-48-4	
Copper, Dissolved	3.4J	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 10:46	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 10:46	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 10:46	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 10:46	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 10:46	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 10:46	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 10:46	7440-28-0	
Vanadium, Dissolved	11.2J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 10:46	7440-62-2	
Zinc, Dissolved	174	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 10:46	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:12	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/10/19 02:45	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/10/19 02:45	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/10/19 02:45	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/10/19 02:45	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/10/19 02:45	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/10/19 02:45	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/10/19 02:45	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/10/19 02:45	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 02:45	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/10/19 02:45	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 02:45	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 02:45	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/10/19 02:45	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/10/19 02:45	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 02:45	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/10/19 02:45	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/10/19 02:45	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/10/19 02:45	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/10/19 02:45	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/10/19 02:45	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: **FD4-GW-100319** Lab ID: **10494124002** Collected: 10/03/19 10:48 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/10/19 02:45	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 02:45	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/10/19 02:45	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/10/19 02:45	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/10/19 02:45	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/10/19 02:45	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/10/19 02:45	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/10/19 02:45	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/10/19 02:45	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/10/19 02:45	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/10/19 02:45	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/10/19 02:45	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/10/19 02:45	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/10/19 02:45	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 02:45	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/10/19 02:45	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/10/19 02:45	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/10/19 02:45	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/10/19 02:45	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/10/19 02:45	75-15-0	
Carbon tetrachloride	0.51	ug/L	0.50	0.19	1		10/10/19 02:45	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 02:45	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/10/19 02:45	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/10/19 02:45	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/10/19 02:45	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/10/19 02:45	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/10/19 02:45	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/10/19 02:45	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/10/19 02:45	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/10/19 02:45	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/10/19 02:45	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 02:45	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/10/19 02:45	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/10/19 02:45	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/10/19 02:45	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/10/19 02:45	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/10/19 02:45	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/10/19 02:45	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/10/19 02:45	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/10/19 02:45	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/10/19 02:45	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/10/19 02:45	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/10/19 02:45	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/10/19 02:45	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/10/19 02:45	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/10/19 02:45	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: FD4-GW-100319 **Lab ID: 10494124002** Collected: 10/03/19 10:48 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/10/19 02:45	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/10/19 02:45	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/10/19 02:45	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/10/19 02:45	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/10/19 02:45	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/10/19 02:45	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/10/19 02:45	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 02:45	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/10/19 02:45	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/10/19 02:45	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 02:45	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/10/19 02:45	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/10/19 02:45	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/10/19 02:45	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		10/10/19 02:45	17060-07-0	
Toluene-d8 (S)	95	%	75-125		1		10/10/19 02:45	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		10/10/19 02:45	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	150	mg/L	5.0	2.0	1		10/17/19 09:32		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	212	mg/L	10.0	5.0	1		10/09/19 14:29		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/08/19 14:23	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.8	mg/L	1.2	0.12	1		10/04/19 21:34	16887-00-6	
Nitrate as N	2.8	mg/L	0.10	0.012	1		10/04/19 21:34	14797-55-8	
Sulfate	6.9	mg/L	1.2	0.28	1		10/04/19 21:34	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.8	mg/L	0.50	0.088	5		10/12/19 14:52		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:03		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	0.58J	mg/L	1.0	0.39	1		10/08/19 17:47	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

Sample: Asher-GW-100319 **Lab ID: 10494124003** Collected: 10/03/19 10:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 10:12	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 10:12	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 10:12	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 10:48	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 10:48	7440-38-2	
Barium, Dissolved	71.1	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 10:48	7440-39-3	
Beryllium, Dissolved	0.15J	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 10:48	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 10:48	7440-43-9	
Chromium, Dissolved	0.85J	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 10:48	7440-47-3	
Cobalt, Dissolved	0.62J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 10:48	7440-48-4	B
Copper, Dissolved	92.8	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 10:48	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 10:48	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 10:48	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 10:48	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 10:48	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 10:48	7440-22-4	
Thallium, Dissolved	8.7J	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 10:48	7440-28-0	
Vanadium, Dissolved	10.4J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 10:48	7440-62-2	
Zinc, Dissolved	45.3	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 10:48	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:14	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	223	mg/L	5.0	2.0	1		10/17/19 09:36		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	345	mg/L	10.0	5.0	1		10/09/19 14:29		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/08/19 14:21	18496-25-8	M1
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	6.3	mg/L	1.2	0.12	1		10/04/19 21:49	16887-00-6	
Nitrate as N	7.2	mg/L	0.10	0.012	1		10/04/19 21:49	14797-55-8	M1
Sulfate	22.3	mg/L	1.2	0.28	1		10/04/19 21:49	14808-79-8	M1
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	7.2	mg/L	1.0	0.18	10		10/12/19 14:53		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:04		

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Asher-GW-100319 **Lab ID: 10494124003** Collected: 10/03/19 10:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	1.0J	mg/L	2.0	0.79	2		10/09/19 18:10	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Lashaw-GW-100319 **Lab ID: 10494124004** Collected: 10/03/19 10:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 11:15	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 11:15	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 11:15	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 10:56	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 10:56	7440-38-2	
Barium, Dissolved	9.6J	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 10:56	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 10:56	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 10:56	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 10:56	7440-47-3	
Cobalt, Dissolved	0.61J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 10:56	7440-48-4	B
Copper, Dissolved	3.7J	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 10:56	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 10:56	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 10:56	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 10:56	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 10:56	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 10:56	7440-22-4	
Thallium, Dissolved	6.8J	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 10:56	7440-28-0	
Vanadium, Dissolved	11.8J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 10:56	7440-62-2	
Zinc, Dissolved	185	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 10:56	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:21	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	148	mg/L	5.0	2.0	1		10/17/19 10:05		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	215	mg/L	10.0	5.0	1		10/09/19 14:29		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/08/19 14:23	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.8	mg/L	1.2	0.12	1		10/04/19 22:53	16887-00-6	
Nitrate as N	2.7	mg/L	0.10	0.012	1		10/04/19 22:53	14797-55-8	
Sulfate	6.8	mg/L	1.2	0.28	1		10/04/19 22:53	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.9	mg/L	0.50	0.088	5		10/12/19 14:57		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:04		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Lashaw-GW-100319 **Lab ID: 10494124004** Collected: 10/03/19 10:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.57J	mg/L	1.0	0.39	1		10/08/19 18:00	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: LashawAg-GW-100319 Lab ID: 10494124005 Collected: 10/03/19 11:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 11:25	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 11:25	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 11:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 10:58	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 10:58	7440-38-2	
Barium, Dissolved	33.7	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 10:58	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 10:58	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 10:58	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 10:58	7440-47-3	
Cobalt, Dissolved	0.83J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 10:58	7440-48-4	B
Copper, Dissolved	2.2J	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 10:58	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 10:58	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 10:58	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 10:58	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 10:58	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 10:58	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 10:58	7440-28-0	
Vanadium, Dissolved	3.1J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 10:58	7440-62-2	
Zinc, Dissolved	316	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 10:58	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:24	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	185	mg/L	5.0	2.0	1		10/17/19 10:08		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	234	mg/L	10.0	5.0	1		10/09/19 14:29		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/08/19 14:24	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	3.0	mg/L	1.2	0.12	1		10/05/19 00:11	16887-00-6	
Nitrate as N	0.10	mg/L	0.10	0.012	1		10/05/19 00:11	14797-55-8	
Sulfate	6.1	mg/L	1.2	0.28	1		10/05/19 00:11	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.11	mg/L	0.10	0.018	1		10/12/19 13:18		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:04		

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: LashawAg-GW-100319 **Lab ID: 10494124005** Collected: 10/03/19 11:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.97J	mg/L	2.0	0.79	2		10/09/19 17:57	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Silva-GW-100319 **Lab ID: 10494124006** Collected: 10/03/19 09:15 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 11:35	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 11:35	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 11:35	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 11:03	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 11:03	7440-38-2	
Barium, Dissolved	28.6	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 11:03	7440-39-3	
Beryllium, Dissolved	0.20J	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 11:03	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 11:03	7440-43-9	
Chromium, Dissolved	0.73J	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 11:03	7440-47-3	
Cobalt, Dissolved	0.71J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 11:03	7440-48-4	B
Copper, Dissolved	15.6	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 11:03	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 11:03	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 11:03	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 11:03	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 11:03	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 11:03	7440-22-4	
Thallium, Dissolved	7.3J	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 11:03	7440-28-0	
Vanadium, Dissolved	9.0J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 11:03	7440-62-2	
Zinc, Dissolved	24.1	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 11:03	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:30	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	174	mg/L	5.0	2.0	1		10/17/19 10:12		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	251	mg/L	10.0	5.0	1		10/09/19 14:29		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/08/19 14:06	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	2.4	mg/L	1.2	0.12	1		10/05/19 00:27	16887-00-6	
Nitrate as N	2.4	mg/L	0.10	0.012	1		10/05/19 00:27	14797-55-8	
Sulfate	11.1	mg/L	1.2	0.28	1		10/05/19 00:27	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.5	mg/L	0.50	0.088	5		10/12/19 15:03		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:05		

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Silva-GW-100319 **Lab ID: 10494124006** Collected: 10/03/19 09:15 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	1.1	mg/L	1.0	0.39	1		10/08/19 20:56	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Reed-GW-100319 **Lab ID: 10494124007** Collected: 10/03/19 13:30 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 12:45	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 12:45	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 12:45	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 11:05	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 11:05	7440-38-2	
Barium, Dissolved	46.2	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 11:05	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 11:05	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 11:05	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 11:05	7440-47-3	
Cobalt, Dissolved	1.0J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 11:05	7440-48-4	B
Copper, Dissolved	2.8J	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 11:05	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 11:05	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 11:05	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 11:05	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 11:05	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 11:05	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 11:05	7440-28-0	
Vanadium, Dissolved	22.9	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 11:05	7440-62-2	
Zinc, Dissolved	25.1	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 11:05	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 16:33	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	143	mg/L	5.0	2.0	1		10/17/19 09:47		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	193	mg/L	10.0	5.0	1		10/10/19 11:15		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/09/19 15:45	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.4	mg/L	1.2	0.12	1		10/05/19 00:42	16887-00-6	
Nitrate as N	0.34	mg/L	0.10	0.012	1		10/05/19 00:42	14797-55-8	
Sulfate	7.7	mg/L	1.2	0.28	1		10/05/19 00:42	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.37	mg/L	0.10	0.018	1		10/12/19 13:23		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:05		

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Sample: Reed-GW-100319 **Lab ID: 10494124007** Collected: 10/03/19 13:30 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.40J	mg/L	1.0	0.39	1		10/08/19 21:09	7440-44-0	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 637037 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 GCV HEADSPACE
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3433436 Matrix: Water
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethane	ug/L	<3.0	10.0	3.0	10/09/19 09:53	
Ethene	ug/L	<2.9	10.0	2.9	10/09/19 09:53	
Methane	ug/L	<4.9	10.0	4.9	10/09/19 09:53	

LABORATORY CONTROL SAMPLE & LCSD: 3433437 3433438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	110	102	97	90	85-115	8	20	
Ethene	ug/L	106	103	96.9	97	91	85-115	6	20	
Methane	ug/L	60.7	56.4	56.4	93	93	85-115	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3433439 3433440

Parameter	Units	10494124003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	<3.0	114	114	114	115	100	101	30-150	1	20	
Ethene	ug/L	<2.9	106	106	106	107	100	101	30-150	1	20	
Methane	ug/L	<4.9	60.7	60.7	58.3	59.0	94	95	30-150	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3433441 3433442

Parameter	Units	10494124007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	<3.0	114	114	123	121	108	107	30-150	1	20	
Ethene	ug/L	<2.9	106	106	115	113	108	106	30-150	2	20	
Methane	ug/L	<4.9	60.7	60.7	68.3	62.8	111	102	30-150	8	20	

SAMPLE DUPLICATE: 3433444

Parameter	Units	20124505004 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	24.0	22.8	5	20	
Ethene	ug/L	ND	<2.9		20	
Methane	ug/L	950	898	6	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 637989 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3439414 Matrix: Water
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	10/16/19 16:08	

LABORATORY CONTROL SAMPLE: 3439415

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.5	111	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439416 3439417

Parameter	Units	10494124003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury, Dissolved	ug/L	<0.093	5	5.3	5	5.3	106	106	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439418 3439419

Parameter	Units	10494124007 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury, Dissolved	ug/L	<0.093	5	5.5	5	5.6	110	112	80-120	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 637957 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3439284 Matrix: Water
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	10/17/19 10:43	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	10/17/19 10:43	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	10/17/19 10:43	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	10/17/19 10:43	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	10/17/19 10:43	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	10/17/19 10:43	
Cobalt, Dissolved	ug/L	0.52J	10.0	0.50	10/17/19 10:43	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	10/17/19 10:43	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	10/17/19 10:43	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	10/17/19 10:43	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	10/17/19 10:43	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	10/17/19 10:43	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	10/17/19 10:43	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	10/17/19 10:43	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	10/17/19 10:43	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	10/17/19 10:43	

LABORATORY CONTROL SAMPLE: 3439285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	960	96	80-120	
Arsenic, Dissolved	ug/L	1000	1020	102	80-120	
Barium, Dissolved	ug/L	1000	1020	102	80-120	
Beryllium, Dissolved	ug/L	1000	1030	103	80-120	
Cadmium, Dissolved	ug/L	1000	1040	104	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1020	102	80-120	
Copper, Dissolved	ug/L	1000	1000	100	80-120	
Lead, Dissolved	ug/L	1000	1020	102	80-120	
Molybdenum, Dissolved	ug/L	1000	985	98	80-120	
Nickel, Dissolved	ug/L	1000	1010	101	80-120	
Selenium, Dissolved	ug/L	1000	1040	104	80-120	
Silver, Dissolved	ug/L	500	511	102	80-120	
Thallium, Dissolved	ug/L	1000	987	99	80-120	
Vanadium, Dissolved	ug/L	1000	1020	102	80-120	
Zinc, Dissolved	ug/L	1000	1030	103	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439286												3439287	
Parameter	Units	10494124007 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony, Dissolved	ug/L	<7.0	1000	1000	1000	997	100	100	75-125	1	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1030	1040	103	104	75-125	1	20		
Barium, Dissolved	ug/L	46.2	1000	1000	1080	1100	104	105	75-125	1	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1050	1070	105	107	75-125	1	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1040	1050	104	105	75-125	1	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	1040	1050	104	105	75-125	1	20		
Cobalt, Dissolved	ug/L	1.0J	1000	1000	1020	1030	102	103	75-125	1	20		
Copper, Dissolved	ug/L	2.8J	1000	1000	1030	1040	102	104	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1030	1040	103	104	75-125	1	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1000	997	100	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1010	1020	101	102	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1060	1070	105	107	75-125	1	20		
Silver, Dissolved	ug/L	<0.40	500	500	524	529	105	106	75-125	1	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	994	1010	99	101	75-125	2	20		
Vanadium, Dissolved	ug/L	22.9	1000	1000	1060	1070	104	105	75-125	1	20		
Zinc, Dissolved	ug/L	25.1	1000	1000	1060	1070	103	104	75-125	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439420												3439421	
Parameter	Units	10494124003 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony, Dissolved	ug/L	<7.0	1000	1000	994	994	99	99	75-125	0	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1040	1040	104	104	75-125	0	20		
Barium, Dissolved	ug/L	71.1	1000	1000	1100	1100	103	103	75-125	0	20		
Beryllium, Dissolved	ug/L	0.15J	1000	1000	1060	1060	106	106	75-125	0	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1040	1030	104	103	75-125	1	20		
Chromium, Dissolved	ug/L	0.85J	1000	1000	1030	1030	103	103	75-125	0	20		
Cobalt, Dissolved	ug/L	0.62J	1000	1000	1020	1010	102	101	75-125	0	20		
Copper, Dissolved	ug/L	92.8	1000	1000	1130	1120	104	103	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1030	1020	103	102	75-125	0	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1000	993	100	99	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1010	1000	101	100	75-125	0	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	1060	105	106	75-125	1	20		
Silver, Dissolved	ug/L	<0.40	500	500	524	523	105	105	75-125	0	20		
Thallium, Dissolved	ug/L	8.7J	1000	1000	994	987	99	98	75-125	1	20		
Vanadium, Dissolved	ug/L	10.4J	1000	1000	1050	1040	104	103	75-125	0	20		
Zinc, Dissolved	ug/L	45.3	1000	1000	1070	1060	102	102	75-125	1	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 637340 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494124001, 10494124002

METHOD BLANK: 3435113 Matrix: Water
Associated Lab Samples: 10494124001, 10494124002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/09/19 19:36	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/09/19 19:36	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/09/19 19:36	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/09/19 19:36	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/09/19 19:36	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/09/19 19:36	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/09/19 19:36	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/09/19 19:36	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/09/19 19:36	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/09/19 19:36	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/09/19 19:36	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/09/19 19:36	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/09/19 19:36	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/09/19 19:36	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/09/19 19:36	
Acetone	ug/L	<9.2	20.0	9.2	10/09/19 19:36	
Acrolein	ug/L	<3.2	10.0	3.2	10/09/19 19:36	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/09/19 19:36	
Benzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/09/19 19:36	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/09/19 19:36	
Bromomethane	ug/L	<1.8	4.0	1.8	10/09/19 19:36	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/09/19 19:36	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

METHOD BLANK: 3435113

Matrix: Water

Associated Lab Samples: 10494124001, 10494124002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Chloroethane	ug/L	<0.49	4.0	0.49	10/09/19 19:36	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/09/19 19:36	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/09/19 19:36	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/09/19 19:36	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/09/19 19:36	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/09/19 19:36	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/09/19 19:36	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/09/19 19:36	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/09/19 19:36	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/09/19 19:36	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/09/19 19:36	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Naphthalene	ug/L	<0.48	1.0	0.48	10/09/19 19:36	
o-Xylene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Styrene	ug/L	<0.19	0.50	0.19	10/09/19 19:36	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/09/19 19:36	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/09/19 19:36	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/09/19 19:36	
Toluene	ug/L	<0.083	0.50	0.083	10/09/19 19:36	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/09/19 19:36	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/09/19 19:36	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/09/19 19:36	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/09/19 19:36	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/09/19 19:36	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/09/19 19:36	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/09/19 19:36	
1,2-Dichloroethane-d4 (S)	%	98	75-136		10/09/19 19:36	
4-Bromofluorobenzene (S)	%	100	75-125		10/09/19 19:36	
Toluene-d8 (S)	%	97	75-125		10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.2	86	68-141	
1,1,1-Trichloroethane	ug/L	20	19.4	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	16.9	84	73-125	
1,1,2-Trichloroethane	ug/L	20	18.0	90	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.5	98	69-132	
1,1-Dichloroethane	ug/L	20	18.8	94	73-125	
1,1-Dichloroethene	ug/L	20	19.2	96	71-126	
1,1-Dichloropropene	ug/L	20	19.3	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	15.9	79	72-126	
1,2,3-Trichloropropane	ug/L	20	16.6	83	75-126	
1,2,4-Trichlorobenzene	ug/L	20	15.0	75	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	39.7	79	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	17.4	87	75-129	
1,2-Dichlorobenzene	ug/L	20	17.1	86	75-129	
1,2-Dichloroethane	ug/L	20	17.3	87	75-125	
1,2-Dichloroethene (Total)	ug/L	40	37.7	94	74-125	N2
1,2-Dichloropropane	ug/L	20	18.0	90	75-125	
1,3,5-Trimethylbenzene	ug/L	20	17.2	86	75-127	
1,3-Dichlorobenzene	ug/L	20	17.0	85	75-126	
1,3-Dichloropropane	ug/L	20	18.0	90	75-125	
1,4-Dichlorobenzene	ug/L	20	16.5	83	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	313	78	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.1	96	72-128	
2,2-Dichloropropane	ug/L	20	17.1	86	65-138	
2-Butanone (MEK)	ug/L	100	102	102	59-144	
2-Chlorotoluene	ug/L	20	16.7	83	75-127	
2-Hexanone	ug/L	100	93.2	93	73-134	
4-Chlorotoluene	ug/L	20	18.1	91	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.9	92	62-141	
Acetone	ug/L	100	108	108	60-137	
Acrolein	ug/L	200	194	97	60-141	
Acrylonitrile	ug/L	200	198	99	75-129	
Benzene	ug/L	20	18.9	95	73-125	
Bromobenzene	ug/L	20	16.4	82	73-125	
Bromochloromethane	ug/L	20	18.0	90	75-135	
Bromodichloromethane	ug/L	20	19.8	99	75-125	
Bromoform	ug/L	20	18.6	93	67-136	
Bromomethane	ug/L	20	23.8	119	30-150	SS
Carbon disulfide	ug/L	20	18.3	91	47-137	
Carbon tetrachloride	ug/L	20	21.4	107	75-125	
Chlorobenzene	ug/L	20	17.2	86	75-125	
Chloroethane	ug/L	20	21.2	106	63-136	
Chloroform	ug/L	20	18.6	93	73-128	
Chloromethane	ug/L	20	21.4	107	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.6	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.2	96	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	18.9	94	75-125	
Dibromomethane	ug/L	20	17.9	89	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	19.1	96	68-127	
Diisopropyl ether	ug/L	20	18.7	94	71-131	
Ethyl-tert-butyl ether	ug/L	20	14.4	72	75-125	L2
Ethylbenzene	ug/L	20	18.3	91	75-125	
Hexachloro-1,3-butadiene	ug/L	20	15.2	76	72-134	
Isopropylbenzene (Cumene)	ug/L	20	18.4	92	75-125	
m&p-Xylene	ug/L	40	38.8	97	75-126	
Methyl-tert-butyl ether	ug/L	20	16.2	81	75-125	
Methylene Chloride	ug/L	20	20.3	102	70-125	
n-Butylbenzene	ug/L	20	16.9	85	75-126	
n-Propylbenzene	ug/L	20	17.0	85	73-127	
Naphthalene	ug/L	20	15.5	78	63-128	
o-Xylene	ug/L	20	18.1	90	75-128	
p-Isopropyltoluene	ug/L	20	17.5	87	75-125	
sec-Butylbenzene	ug/L	20	19.3	96	75-126	
Styrene	ug/L	20	18.7	94	75-125	
tert-Amylmethyl ether	ug/L	20	12.9	65	75-125	L2
tert-Butyl Alcohol	ug/L	200	153	77	75-130	
tert-Butylbenzene	ug/L	20	18.9	95	75-131	
Tetrachloroethene	ug/L	20	16.5	83	74-125	
Tetrahydrofuran	ug/L	200	185	93	64-138	
Toluene	ug/L	20	17.4	87	74-125	
trans-1,2-Dichloroethene	ug/L	20	19.1	95	68-128	
trans-1,3-Dichloropropene	ug/L	20	15.9	79	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.3	99	60-127	
Trichloroethene	ug/L	20	19.2	96	75-127	
Trichlorofluoromethane	ug/L	20	18.7	93	72-133	
Vinyl acetate	ug/L	20	19.1	95	61-129	
Vinyl chloride	ug/L	20	22.6	113	75-128	
Xylene (Total)	ug/L	60	56.9	95	75-125	
1,2-Dichloroethane-d4 (S)	%			98	75-136	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			94	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3435115 3435116

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494126001 Result	Spike Conc.	Spike Conc.	3435116 Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	21.7	19.8	109	99	75-140	9	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.5	22.8	133	114	74-136	15	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.0	18.9	95	95	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.6	20.5	108	102	75-126	5	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3435115			3435116							
Parameter	Units	10494126001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.2	24.7	136	123	65-146	10	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	24.4	22.5	122	112	68-132	8	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	25.6	21.7	128	108	66-139	17	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	26.3	23.2	131	116	67-134	12	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	21.4	19.9	107	99	67-129	7	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.7	20.0	98	100	69-128	1	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	21.5	20.1	107	100	65-140	7	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.4	24.5	127	122	71-133	4	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	43.9	44.9	88	90	54-138	2	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20.8	20.3	104	101	68-125	2	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.8	20.1	104	100	74-136	4	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	22.0	20.2	110	101	68-125	8	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	49.8	42.7	125	107	71-126	15	30 N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.7	19.7	109	98	67-125	10	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	22.6	21.9	113	109	68-137	3	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	21.5	21.0	107	105	75-131	2	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	21.8	20.4	109	102	71-125	6	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	20.3	19.8	102	99	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	410	385	103	96	68-125	6	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	31.5	23.2	158	116	54-129	31	30 M1,R1	
2,2-Dichloropropane	ug/L	<0.17	20	20	25.9	21.4	130	107	69-139	19	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	108	106	108	106	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	20	20	21.8	21.1	109	105	75-134	3	30	
2-Hexanone	ug/L	<0.88	100	100	104	103	104	103	58-137	1	30	
4-Chlorotoluene	ug/L	<0.13	20	20	22.5	21.9	113	110	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	106	104	106	104	60-129	1	30	
Acetone	ug/L	<9.2	100	100	110	107	110	107	62-132	3	30	
Acrolein	ug/L	<3.2	200	200	250	237	125	118	30-150	5	30	
Acrylonitrile	ug/L	<0.91	200	200	232	223	116	112	68-125	4	30	
Benzene	ug/L	<0.10	20	20	24.7	21.6	123	108	68-125	13	30	
Bromobenzene	ug/L	<0.21	20	20	19.7	18.9	98	95	73-126	4	30	
Bromochloromethane	ug/L	<0.27	20	20	22.0	20.6	110	103	66-143	6	30	
Bromodichloromethane	ug/L	<0.22	20	20	23.6	22.7	118	114	74-125	4	30	
Bromoform	ug/L	<0.80	20	20	21.3	20.4	106	102	64-134	4	30	
Bromomethane	ug/L	<1.8	20	20	26.9	28.8	134	144	30-150	7	30 SS	
Carbon disulfide	ug/L	<0.19	20	20	27.6	21.7	138	109	43-147	24	30	
Carbon tetrachloride	ug/L	<0.19	20	20	27.7	24.1	139	121	71-143	14	30	
Chlorobenzene	ug/L	<0.17	20	20	21.3	20.2	106	101	75-125	5	30	
Chloroethane	ug/L	<0.49	20	20	23.4	25.6	117	128	75-129	9	30	
Chloroform	ug/L	<0.45	20	20	23.8	21.0	119	105	66-132	12	30	
Chloromethane	ug/L	<0.48	20	20	27.2	28.2	136	141	53-137	4	30 M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	24.0	20.5	120	102	67-133	16	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	22.8	20.5	114	102	66-125	11	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Parameter	Units	10494126001		MS		MSD		3435115		3435116		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD		
Dibromochloromethane	ug/L	<0.12	20	20	23.4	22.4	117	112	62-132	4	30	
Dibromomethane	ug/L	<0.16	20	20	20.9	19.5	105	98	67-125	7	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.0	27.2	130	136	71-142	4	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	21.4	23.3	107	117	70-131	9	30	
Diisopropyl ether	ug/L	<0.13	20	20	23.4	21.6	117	108	63-131	8	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	18.4	17.6	92	88	66-128	5	30	
Ethylbenzene	ug/L	<0.14	20	20	23.7	22.0	118	110	74-126	7	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.1	19.1	131	95	68-143	31	30	R1
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.2	23.2	121	116	74-130	4	30	
m&p-Xylene	ug/L	<0.31	40	40	49.6	47.6	124	119	69-132	4	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.9	19.5	100	97	65-131	2	30	
Methylene Chloride	ug/L	<0.98	20	20	23.8	22.0	119	110	57-125	8	30	
n-Butylbenzene	ug/L	<0.24	20	20	25.3	21.4	127	107	71-131	17	30	
n-Propylbenzene	ug/L	<0.10	20	20	22.8	22.0	114	110	67-138	4	30	
Naphthalene	ug/L	<0.48	20	20	18.7	20.1	94	101	60-130	7	30	
o-Xylene	ug/L	<0.16	20	20	23.0	21.8	115	109	69-131	6	30	
p-Isopropyltoluene	ug/L	<0.15	20	20	24.3	22.4	121	112	72-133	8	30	
sec-Butylbenzene	ug/L	<0.15	20	20	27.7	24.3	138	121	73-134	13	30	M1
Styrene	ug/L	<0.19	20	20	22.8	21.6	114	108	72-125	6	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	16.4	15.5	82	78	67-125	6	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	184	179	92	90	64-137	2	30	
tert-Butylbenzene	ug/L	<0.15	20	20	26.4	24.8	132	124	70-143	6	30	
Tetrachloroethene	ug/L	<0.17	20	20	22.8	21.4	114	107	72-129	6	30	
Tetrahydrofuran	ug/L	<2.2	200	200	213	202	106	101	66-128	5	30	
Toluene	ug/L	<0.083	20	20	21.7	20.0	109	100	73-125	8	30	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	25.8	22.2	129	111	62-137	15	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.8	18.4	99	92	61-136	7	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	54.8	54.3	110	109	45-128	1	30	
Trichloroethene	ug/L	<0.15	20	20	25.0	21.5	125	108	74-132	15	30	
Trichlorofluoromethane	ug/L	<0.23	20	20	22.2	24.5	111	122	75-139	10	30	
Vinyl acetate	ug/L	<1.1	20	20	24.9	23.1	125	115	51-135	8	30	
Vinyl chloride	ug/L	<0.092	20	20	27.2	27.9	136	139	68-146	3	30	
Xylene (Total)	ug/L	<0.31	60	60	72.6	69.4	121	116	67-137	5	30	
1,2-Dichloroethane-d4 (S)	%						101	102	75-136			
4-Bromofluorobenzene (S)	%						96	97	75-125			
Toluene-d8 (S)	%						94	94	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 638982 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3443239 Matrix: Water
Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	10/17/19 09:22	

LABORATORY CONTROL SAMPLE & LCSD: 3443240 3443241

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	43.4	43.0	108	108	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443242 3443243

Parameter	Units	10494124003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	223	40	40	264	264	102	104	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443244 3443245

Parameter	Units	10494124007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	143	40	40	185	185	104	104	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 637071

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

METHOD BLANK: 3433628

Matrix: Water

Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	10/09/19 14:29	

LABORATORY CONTROL SAMPLE: 3433629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	994	99	80-120	

SAMPLE DUPLICATE: 3433630

Parameter	Units	10494579001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1160	1170	1	5	

SAMPLE DUPLICATE: 3433631

Parameter	Units	10494124003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	345	343	1	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch:	637072	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	10494124007		

METHOD BLANK: 3433632 Matrix: Water
Associated Lab Samples: 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	10/10/19 11:15	

LABORATORY CONTROL SAMPLE: 3433633

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	974	97	80-120	

SAMPLE DUPLICATE: 3433634

Parameter	Units	10494124007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	193	184	5	5	

SAMPLE DUPLICATE: 3433635

Parameter	Units	10494309004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	542	556	3	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 160182

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

METHOD BLANK: 719567

Matrix: Water

Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	10/08/19 13:32	

LABORATORY CONTROL SAMPLE: 719568

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.20	98	90-110	

MATRIX SPIKE SAMPLE: 719570

Parameter	Units	10494124003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.2	0.012J	4	75-125	M1

SAMPLE DUPLICATE: 719569

Parameter	Units	10494124003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0054	<0.0054		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 160342

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10494124007

METHOD BLANK: 720509

Matrix: Water

Associated Lab Samples: 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	10/09/19 15:43	

LABORATORY CONTROL SAMPLE: 720510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.18	92	90-110	

MATRIX SPIKE SAMPLE: 720519

Parameter	Units	10494124007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.2	0.16	80	75-125	

SAMPLE DUPLICATE: 720518

Parameter	Units	10494124007 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0054	<0.0054		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 636406 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3429816 Matrix: Water
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	10/04/19 20:11	
Nitrate as N	mg/L	<0.012	0.10	0.012	10/04/19 20:11	
Sulfate	mg/L	<0.28	1.2	0.28	10/04/19 20:11	

LABORATORY CONTROL SAMPLE: 3429817

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.3	99	90-110	
Nitrate as N	mg/L	1	0.95	95	90-110	
Sulfate	mg/L	12.5	11.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3429818 3429819

Parameter	Units	10494124003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.3	12.5	12.5	17.9	17.9	93	93	90-110	0	20	
Nitrate as N	mg/L	7.2	1	1	7.1	7.1	-16	-17	90-110	0	20 M1	
Sulfate	mg/L	22.3	12.5	12.5	32.8	32.9	84	84	90-110	0	20 M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3429820 3429821

Parameter	Units	10494124007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.4	12.5	12.5	13.5	13.6	97	97	90-110	0	20	
Nitrate as N	mg/L	0.34	1	1	1.2	1.2	90	91	90-110	1	20	
Sulfate	mg/L	7.7	12.5	12.5	20.1	20.2	100	101	90-110	1	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 637585 Analysis Method: EPA 353.2
 QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

METHOD BLANK: 3436765 Matrix: Water
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	10/12/19 13:20	

LABORATORY CONTROL SAMPLE: 3436766

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.95	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436767 3436768

Parameter	Units	10494124003		10494124004		10494124005		10494124006		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Nitrogen, NO2 plus NO3	mg/L	7.2	10	10	10	16.8	17.0	96	98	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436769 3436770

Parameter	Units	10494124004		10494124005		10494124006		% Rec Limits	RPD	Max RPD	Qual		
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, NO2 plus NO3	mg/L	2.9	5	5	5	7.8	7.8	97	99	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 637586 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10494124007

METHOD BLANK: 3436774 Matrix: Water
Associated Lab Samples: 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	10/12/19 13:56	FS

LABORATORY CONTROL SAMPLE: 3436775

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436776 3436777

Parameter	Units	10494124007		3436777		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Nitrogen, NO2 plus NO3	mg/L	0.37	1	1	1	1.3	1.4	97	100	90-110	2	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436778 3436779

Parameter	Units	10494303001		3436779		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Nitrogen, NO2 plus NO3	mg/L	0.70	1	1	1	1.7	1.7	102	96	90-110	3	20

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

QC Batch: 637149 Analysis Method: EPA 410.4
 QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

METHOD BLANK: 3434057 Matrix: Water
 Associated Lab Samples: 10494124002, 10494124003, 10494124004, 10494124005, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	10/09/19 16:00	

LABORATORY CONTROL SAMPLE: 3434058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	301	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434059 3434060

Parameter	Units	10494124003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Chemical Oxygen Demand	mg/L	<17.0	250	247	246	98	98	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434061 3434062

Parameter	Units	10494124007 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Chemical Oxygen Demand	mg/L	<17.0	250	239	240	96	96	90-110	0	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 176500 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10494124002, 10494124004, 10494124005

METHOD BLANK: 699423 Matrix: Water
Associated Lab Samples: 10494124002, 10494124004, 10494124005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	10/08/19 11:52	

LABORATORY CONTROL SAMPLE: 699424

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.2	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 699425 699426

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10493884006 Result	Spike Conc.	Spike Conc.	Result						
Total Organic Carbon	mg/L	0.73J	25	25	25.8	26.3	100	102	80-120	2	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 699427 699428

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494107004 Result	Spike Conc.	Spike Conc.	Result						
Total Organic Carbon	mg/L	3.7	25	25	28.6	29.2	99	102	80-120	2	20

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494124

QC Batch: 176501 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10494124003, 10494124006, 10494124007

METHOD BLANK: 699430 Matrix: Water
Associated Lab Samples: 10494124003, 10494124006, 10494124007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	10/08/19 18:33	

LABORATORY CONTROL SAMPLE: 699431

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.0	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 699432 699433

Parameter	Units	10494124003		10494124006		10494124007		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Total Organic Carbon	mg/L	1.0J	50	50	51.4	51.5	101	101	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 699434 699435

Parameter	Units	10494124007		10494124003		10494124006		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Total Organic Carbon	mg/L	0.40J	25	25	25.9	26.0	102	102	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 699472 699473

Parameter	Units	10494360001		10494124003		10494124006		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Total Organic Carbon	mg/L	5.2	25	25	30.1	30.1	100	100	80-120	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

FS The sample was filtered in the laboratory prior to analysis.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494124002	FD4-GW-100319	RSK 175	637037		
10494124003	Asher-GW-100319	RSK 175	637037		
10494124004	Lashaw-GW-100319	RSK 175	637037		
10494124005	LashawAg-GW-100319	RSK 175	637037		
10494124006	Silva-GW-100319	RSK 175	637037		
10494124007	Reed-GW-100319	RSK 175	637037		
10494124002	FD4-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124003	Asher-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124004	Lashaw-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124005	LashawAg-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124006	Silva-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124007	Reed-GW-100319	EPA 3010	637957	EPA 6010D	638747
10494124002	FD4-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124003	Asher-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124004	Lashaw-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124005	LashawAg-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124006	Silva-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124007	Reed-GW-100319	EPA 7470A	637989	EPA 7470A	638730
10494124001	Trip Blank	EPA 8260B	637340		
10494124002	FD4-GW-100319	EPA 8260B	637340		
10494124002	FD4-GW-100319	SM 2320B	638982		
10494124003	Asher-GW-100319	SM 2320B	638982		
10494124004	Lashaw-GW-100319	SM 2320B	638982		
10494124005	LashawAg-GW-100319	SM 2320B	638982		
10494124006	Silva-GW-100319	SM 2320B	638982		
10494124007	Reed-GW-100319	SM 2320B	638982		
10494124002	FD4-GW-100319	SM 2540C	637071		
10494124003	Asher-GW-100319	SM 2540C	637071		
10494124004	Lashaw-GW-100319	SM 2540C	637071		
10494124005	LashawAg-GW-100319	SM 2540C	637071		
10494124006	Silva-GW-100319	SM 2540C	637071		
10494124007	Reed-GW-100319	SM 2540C	637072		
10494124002	FD4-GW-100319	SM 4500-S-2 D	160182		
10494124003	Asher-GW-100319	SM 4500-S-2 D	160182		
10494124004	Lashaw-GW-100319	SM 4500-S-2 D	160182		
10494124005	LashawAg-GW-100319	SM 4500-S-2 D	160182		
10494124006	Silva-GW-100319	SM 4500-S-2 D	160182		
10494124007	Reed-GW-100319	SM 4500-S-2 D	160342		
10494124002	FD4-GW-100319	EPA 300.0	636406		
10494124003	Asher-GW-100319	EPA 300.0	636406		
10494124004	Lashaw-GW-100319	EPA 300.0	636406		
10494124005	LashawAg-GW-100319	EPA 300.0	636406		
10494124006	Silva-GW-100319	EPA 300.0	636406		
10494124007	Reed-GW-100319	EPA 300.0	636406		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494124

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494124002	FD4-GW-100319	EPA 353.2	637585		
10494124003	Asher-GW-100319	EPA 353.2	637585		
10494124004	Lashaw-GW-100319	EPA 353.2	637585		
10494124005	LashawAg-GW-100319	EPA 353.2	637585		
10494124006	Silva-GW-100319	EPA 353.2	637585		
10494124007	Reed-GW-100319	EPA 353.2	637586		
10494124002	FD4-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124003	Asher-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124004	Lashaw-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124005	LashawAg-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124006	Silva-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124007	Reed-GW-100319	EPA 410.4	637149	EPA 410.4	637302
10494124002	FD4-GW-100319	SM 5310C	176500		
10494124003	Asher-GW-100319	SM 5310C	176501		
10494124004	Lashaw-GW-100319	SM 5310C	176500		
10494124005	LashawAg-GW-100319	SM 5310C	176500		
10494124006	Silva-GW-100319	SM 5310C	176501		
10494124007	Reed-GW-100319	SM 5310C	176501		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: UPRR Jacobs

Project #:

WO#: 10494124
 PM: JMG Due Date: 10/18/19
 CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7021 4575 3632 / 3610 / 3621

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.9, 1.1, 0.6</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>true</u>	Cooler Temp Corrected w/temp blank: <u>0.9, 1.1, 0.6</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 10-4-19 MA
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No
 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>2, 4-6: 1/1</u> <u>3, 7: 3/3</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: <u>VOA</u> , Coliform, <u>DOC</u> Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot#
	Res. Chlorine 0-6 Roll <u>203619</u> 0-6 Strip 0-14 Strip <u>100425-1</u>
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>225458</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No
 Comments/Resolution: _____

Project Manager Review: [Signature]

Date: 10/04/2019

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Chain of Custody

 Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

 Cert. Needed: Yes


12136638

Workorder: 10494124 Workorder Name: Freeman, WA-Cenex Harvest Lease

Owner Received Date: 10/4/2019 Results Requested By: 10/18/2019

Report To		Subcontract To				Requested Analysis															
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				5632354 / 5310 TOC															
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers						LAB USE ONLY									
						D	S	S	S	S	S										
1	FD4-GW-100319	PS	10/3/2019 10:48	10494124002	Water	2															
2	Asher-GW-100319	RQS	10/3/2019 10:00	10494124003	Water	6															
3	Lashaw-GW-100319	PS	10/3/2019 10:45	10494124004	Water	2															
4	LashawAg-GW-100319	PS	10/3/2019 11:45	10494124005	Water	2															
5	Silva-GW-100319	PS	10/3/2019 09:15	10494124006	Water	2															
6	Reed-GW-100319	RQS	10/3/2019 13:30	10494124007	Water	6															
Transfers											Comments										
Released By	Date/Time	Received By	Date/Time																		
<i>[Signature]</i>	10/4/19 1500	<i>[Signature]</i>	10-4-19 1900																		
<i>[Signature]</i>	10-4-19 2325	<i>[Signature]</i>	10/7/19 0630																		
Cooler Temperature on Receipt 1.5 °C		Custody Seal <input checked="" type="checkbox"/> or N				Received on Ice <input checked="" type="checkbox"/> or N				Samples Intact <input checked="" type="checkbox"/> or N											

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name:

Pace WA

Project #:

WO#: 12136638

PM: RK1

Due Date: 10/18/19

CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.8 Cooler Temp Corrected °C: 1.1 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 10.7.19 Bm

Comments: Bm 10/7/19

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WF</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: _____

Lauren Ferrier

Date: 10/7/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No



Workorder: 10494124 Workorder Name: Freeman,WA-Cenex Harvest Lease Owner Received Date: 10/4/2019 Results Requested By: 10/18/2019

Report To		Subcontract To				Requested Analysis																	
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333				<div style="text-align: right; font-size: 24pt; font-weight: bold;">WO#: 20124556</div>																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					Other BPZZ	5636267 / 4500 Sulfide	LAB USE ONLY										
1	FD4-GW-100319	PS	10/3/2019 10:48	10494124002	Water	1																	
2	Asher-GW-100319	RQS	10/3/2019 10:00	10494124003	Water	3																	
3	Lashaw-GW-100319	PS	10/3/2019 10:45	10494124004	Water	1																	
4	LashawAg-GW-100319	PS	10/3/2019 11:45	10494124005	Water	1																	
5	Silva-GW-100319	PS	10/3/2019 09:15	10494124006	Water	1																	
6	Reed-GW-100319	RQS	10/3/2019 13:30	10494124007	Water	3																	

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Jal Pace	10/4/19 14:29	FedEx		
2	FedEx	10-5-19 9:30	Jal Pace	10-5-19 9:30	
3					

Cooler Temperature on Receipt	1-9 °C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	Y or N
-------------------------------	--------	--------------	--------	-----------------	--------	----------------	--------

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 20124556



Sample Condition Upon Receipt

PM: CMM

Due Date: 10/18/19

CLIENT: PASI-MINN

1000 Riverbend, Blvd., Suite F
St. Rose, LA 70087

Project

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5
 Therm Fisher IR 6
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 8°C

Date and Initials of person examining contents: 10/5/19 JMS

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

October 10, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

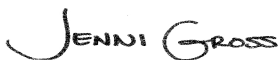
RE: Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494126

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494126001	Asher-GW-100319	Water	10/03/19 10:00	10/04/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494126001	Asher-GW-100319	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494126

Method: EPA 8260B
Description: 8260B MSV Low Level
Client: UPRR_Jacobs
Date: October 10, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Asher-GW-100319 (Lab ID: 10494126001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 637340

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3435114)
 - Bromomethane
- MS (Lab ID: 3435115)
 - Bromomethane
- MSD (Lab ID: 3435116)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3435115)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 10, 2019

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- 2,2,4-Trimethylpentane
- sec-Butylbenzene
- MSD (Lab ID: 3435116)
- Chloromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3435116)
- 2,2,4-Trimethylpentane
- Hexachloro-1,3-butadiene

Additional Comments:

Analyte Comments:

QC Batch: 637340

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Asher-GW-100319 (Lab ID: 10494126001)
 - 1,2-Dichloroethene (Total)
- BLANK (Lab ID: 3435113)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3435114)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3435115)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3435116)
 - 1,2-Dichloroethene (Total)

- Asher-GW-100319 (Lab ID: 10494126001)
 - Dichlorofluoromethane
- BLANK (Lab ID: 3435113)
 - Dichlorofluoromethane
- LCS (Lab ID: 3435114)
 - Dichlorofluoromethane
- MS (Lab ID: 3435115)
 - Dichlorofluoromethane
- MSD (Lab ID: 3435116)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Sample: Asher-GW-100319 Lab ID: 10494126001 Collected: 10/03/19 10:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/09/19 23:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/09/19 23:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/09/19 23:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/09/19 23:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/09/19 23:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/09/19 23:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/09/19 23:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/09/19 23:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/09/19 23:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/09/19 23:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/09/19 23:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/09/19 23:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/09/19 23:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/09/19 23:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/09/19 23:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/09/19 23:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/09/19 23:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/09/19 23:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/09/19 23:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/09/19 23:10	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/09/19 23:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/09/19 23:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/09/19 23:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/09/19 23:10	540-84-1	M1,R1
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/09/19 23:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/09/19 23:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/09/19 23:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/09/19 23:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/09/19 23:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/09/19 23:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/09/19 23:10	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/09/19 23:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/09/19 23:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/09/19 23:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/09/19 23:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/09/19 23:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/09/19 23:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/09/19 23:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/09/19 23:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/09/19 23:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/09/19 23:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/09/19 23:10	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/09/19 23:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/09/19 23:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/09/19 23:10	74-87-3	M1
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/09/19 23:10	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Sample: Asher-GW-100319 **Lab ID: 10494126001** Collected: 10/03/19 10:00 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/09/19 23:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/09/19 23:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/09/19 23:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/09/19 23:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/09/19 23:10	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/09/19 23:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/09/19 23:10	87-68-3	R1
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/09/19 23:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/09/19 23:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/09/19 23:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/09/19 23:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/09/19 23:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/09/19 23:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/09/19 23:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/09/19 23:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/09/19 23:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/09/19 23:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/09/19 23:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/09/19 23:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/09/19 23:10	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/09/19 23:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/09/19 23:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/09/19 23:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/09/19 23:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/09/19 23:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/09/19 23:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/09/19 23:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/09/19 23:10	135-98-8	M1
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/09/19 23:10	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/09/19 23:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/09/19 23:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/09/19 23:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/09/19 23:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/09/19 23:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%	75-136		1		10/09/19 23:10	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1		10/09/19 23:10	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		10/09/19 23:10	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494126

QC Batch: 637340 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494126001

METHOD BLANK: 3435113 Matrix: Water
Associated Lab Samples: 10494126001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/09/19 19:36	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/09/19 19:36	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/09/19 19:36	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/09/19 19:36	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/09/19 19:36	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/09/19 19:36	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/09/19 19:36	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/09/19 19:36	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/09/19 19:36	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/09/19 19:36	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/09/19 19:36	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/09/19 19:36	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/09/19 19:36	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/09/19 19:36	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/09/19 19:36	
Acetone	ug/L	<9.2	20.0	9.2	10/09/19 19:36	
Acrolein	ug/L	<3.2	10.0	3.2	10/09/19 19:36	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/09/19 19:36	
Benzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/09/19 19:36	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/09/19 19:36	
Bromomethane	ug/L	<1.8	4.0	1.8	10/09/19 19:36	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/09/19 19:36	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

METHOD BLANK: 3435113

Matrix: Water

Associated Lab Samples: 10494126001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Chloroethane	ug/L	<0.49	4.0	0.49	10/09/19 19:36	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/09/19 19:36	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/09/19 19:36	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/09/19 19:36	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/09/19 19:36	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/09/19 19:36	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/09/19 19:36	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/09/19 19:36	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/09/19 19:36	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/09/19 19:36	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/09/19 19:36	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Naphthalene	ug/L	<0.48	1.0	0.48	10/09/19 19:36	
o-Xylene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Styrene	ug/L	<0.19	0.50	0.19	10/09/19 19:36	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/09/19 19:36	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/09/19 19:36	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/09/19 19:36	
Toluene	ug/L	<0.083	0.50	0.083	10/09/19 19:36	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/09/19 19:36	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/09/19 19:36	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/09/19 19:36	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/09/19 19:36	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/09/19 19:36	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/09/19 19:36	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/09/19 19:36	
1,2-Dichloroethane-d4 (S)	%	98	75-136		10/09/19 19:36	
4-Bromofluorobenzene (S)	%	100	75-125		10/09/19 19:36	
Toluene-d8 (S)	%	97	75-125		10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.2	86	68-141	
1,1,1-Trichloroethane	ug/L	20	19.4	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	16.9	84	73-125	
1,1,2-Trichloroethane	ug/L	20	18.0	90	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.5	98	69-132	
1,1-Dichloroethane	ug/L	20	18.8	94	73-125	
1,1-Dichloroethene	ug/L	20	19.2	96	71-126	
1,1-Dichloropropene	ug/L	20	19.3	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	15.9	79	72-126	
1,2,3-Trichloropropane	ug/L	20	16.6	83	75-126	
1,2,4-Trichlorobenzene	ug/L	20	15.0	75	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	39.7	79	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	17.4	87	75-129	
1,2-Dichlorobenzene	ug/L	20	17.1	86	75-129	
1,2-Dichloroethane	ug/L	20	17.3	87	75-125	
1,2-Dichloroethene (Total)	ug/L	40	37.7	94	74-125	N2
1,2-Dichloropropane	ug/L	20	18.0	90	75-125	
1,3,5-Trimethylbenzene	ug/L	20	17.2	86	75-127	
1,3-Dichlorobenzene	ug/L	20	17.0	85	75-126	
1,3-Dichloropropane	ug/L	20	18.0	90	75-125	
1,4-Dichlorobenzene	ug/L	20	16.5	83	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	313	78	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.1	96	72-128	
2,2-Dichloropropane	ug/L	20	17.1	86	65-138	
2-Butanone (MEK)	ug/L	100	102	102	59-144	
2-Chlorotoluene	ug/L	20	16.7	83	75-127	
2-Hexanone	ug/L	100	93.2	93	73-134	
4-Chlorotoluene	ug/L	20	18.1	91	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.9	92	62-141	
Acetone	ug/L	100	108	108	60-137	
Acrolein	ug/L	200	194	97	60-141	
Acrylonitrile	ug/L	200	198	99	75-129	
Benzene	ug/L	20	18.9	95	73-125	
Bromobenzene	ug/L	20	16.4	82	73-125	
Bromochloromethane	ug/L	20	18.0	90	75-135	
Bromodichloromethane	ug/L	20	19.8	99	75-125	
Bromoform	ug/L	20	18.6	93	67-136	
Bromomethane	ug/L	20	23.8	119	30-150	SS
Carbon disulfide	ug/L	20	18.3	91	47-137	
Carbon tetrachloride	ug/L	20	21.4	107	75-125	
Chlorobenzene	ug/L	20	17.2	86	75-125	
Chloroethane	ug/L	20	21.2	106	63-136	
Chloroform	ug/L	20	18.6	93	73-128	
Chloromethane	ug/L	20	21.4	107	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.6	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.2	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	18.9	94	75-125	
Dibromomethane	ug/L	20	17.9	89	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	19.1	96	68-127	
Diisopropyl ether	ug/L	20	18.7	94	71-131	
Ethyl-tert-butyl ether	ug/L	20	14.4	72	75-125	L2
Ethylbenzene	ug/L	20	18.3	91	75-125	
Hexachloro-1,3-butadiene	ug/L	20	15.2	76	72-134	
Isopropylbenzene (Cumene)	ug/L	20	18.4	92	75-125	
m&p-Xylene	ug/L	40	38.8	97	75-126	
Methyl-tert-butyl ether	ug/L	20	16.2	81	75-125	
Methylene Chloride	ug/L	20	20.3	102	70-125	
n-Butylbenzene	ug/L	20	16.9	85	75-126	
n-Propylbenzene	ug/L	20	17.0	85	73-127	
Naphthalene	ug/L	20	15.5	78	63-128	
o-Xylene	ug/L	20	18.1	90	75-128	
p-Isopropyltoluene	ug/L	20	17.5	87	75-125	
sec-Butylbenzene	ug/L	20	19.3	96	75-126	
Styrene	ug/L	20	18.7	94	75-125	
tert-Amylmethyl ether	ug/L	20	12.9	65	75-125	L2
tert-Butyl Alcohol	ug/L	200	153	77	75-130	
tert-Butylbenzene	ug/L	20	18.9	95	75-131	
Tetrachloroethene	ug/L	20	16.5	83	74-125	
Tetrahydrofuran	ug/L	200	185	93	64-138	
Toluene	ug/L	20	17.4	87	74-125	
trans-1,2-Dichloroethene	ug/L	20	19.1	95	68-128	
trans-1,3-Dichloropropene	ug/L	20	15.9	79	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.3	99	60-127	
Trichloroethene	ug/L	20	19.2	96	75-127	
Trichlorofluoromethane	ug/L	20	18.7	93	72-133	
Vinyl acetate	ug/L	20	19.1	95	61-129	
Vinyl chloride	ug/L	20	22.6	113	75-128	
Xylene (Total)	ug/L	60	56.9	95	75-125	
1,2-Dichloroethane-d4 (S)	%			98	75-136	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			94	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3435115 3435116

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494126001	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	21.7	19.8	109	99	75-140	9	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.5	22.8	133	114	74-136	15	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.0	18.9	95	95	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.6	20.5	108	102	75-126	5	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3435115		3435116									
Parameter	Units	10494126001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	RPD	Qual
		Result	Spike	Spike	Result	Result	% Rec	% Rec	Limits				
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.2	24.7	136	123	65-146	10	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.4	22.5	122	112	68-132	8	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	25.6	21.7	128	108	66-139	17	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	26.3	23.2	131	116	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	21.4	19.9	107	99	67-129	7	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.7	20.0	98	100	69-128	1	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	21.5	20.1	107	100	65-140	7	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.4	24.5	127	122	71-133	4	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	43.9	44.9	88	90	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20.8	20.3	104	101	68-125	2	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.8	20.1	104	100	74-136	4	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	22.0	20.2	110	101	68-125	8	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	49.8	42.7	125	107	71-126	15	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.7	19.7	109	98	67-125	10	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	22.6	21.9	113	109	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	21.5	21.0	107	105	75-131	2	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	21.8	20.4	109	102	71-125	6	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	20.3	19.8	102	99	74-126	3	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	410	385	103	96	68-125	6	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	31.5	23.2	158	116	54-129	31	30	M1,R1	
2,2-Dichloropropane	ug/L	<0.17	20	20	25.9	21.4	130	107	69-139	19	30		
2-Butanone (MEK)	ug/L	<0.99	100	100	108	106	108	106	54-144	2	30		
2-Chlorotoluene	ug/L	<0.16	20	20	21.8	21.1	109	105	75-134	3	30		
2-Hexanone	ug/L	<0.88	100	100	104	103	104	103	58-137	1	30		
4-Chlorotoluene	ug/L	<0.13	20	20	22.5	21.9	113	110	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	106	104	106	104	60-129	1	30		
Acetone	ug/L	<9.2	100	100	110	107	110	107	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	250	237	125	118	30-150	5	30		
Acrylonitrile	ug/L	<0.91	200	200	232	223	116	112	68-125	4	30		
Benzene	ug/L	<0.10	20	20	24.7	21.6	123	108	68-125	13	30		
Bromobenzene	ug/L	<0.21	20	20	19.7	18.9	98	95	73-126	4	30		
Bromochloromethane	ug/L	<0.27	20	20	22.0	20.6	110	103	66-143	6	30		
Bromodichloromethane	ug/L	<0.22	20	20	23.6	22.7	118	114	74-125	4	30		
Bromoform	ug/L	<0.80	20	20	21.3	20.4	106	102	64-134	4	30		
Bromomethane	ug/L	<1.8	20	20	26.9	28.8	134	144	30-150	7	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	27.6	21.7	138	109	43-147	24	30		
Carbon tetrachloride	ug/L	<0.19	20	20	27.7	24.1	139	121	71-143	14	30		
Chlorobenzene	ug/L	<0.17	20	20	21.3	20.2	106	101	75-125	5	30		
Chloroethane	ug/L	<0.49	20	20	23.4	25.6	117	128	75-129	9	30		
Chloroform	ug/L	<0.45	20	20	23.8	21.0	119	105	66-132	12	30		
Chloromethane	ug/L	<0.48	20	20	27.2	28.2	136	141	53-137	4	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	24.0	20.5	120	102	67-133	16	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	22.8	20.5	114	102	66-125	11	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Parameter	Units	10494126001		MS		MSD		3435115		3435116		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD		
Dibromochloromethane	ug/L	<0.12	20	20	23.4	22.4	117	112	62-132	4	30	
Dibromomethane	ug/L	<0.16	20	20	20.9	19.5	105	98	67-125	7	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.0	27.2	130	136	71-142	4	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	21.4	23.3	107	117	70-131	9	30	
Diisopropyl ether	ug/L	<0.13	20	20	23.4	21.6	117	108	63-131	8	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	18.4	17.6	92	88	66-128	5	30	
Ethylbenzene	ug/L	<0.14	20	20	23.7	22.0	118	110	74-126	7	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.1	19.1	131	95	68-143	31	30	R1
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.2	23.2	121	116	74-130	4	30	
m&p-Xylene	ug/L	<0.31	40	40	49.6	47.6	124	119	69-132	4	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.9	19.5	100	97	65-131	2	30	
Methylene Chloride	ug/L	<0.98	20	20	23.8	22.0	119	110	57-125	8	30	
n-Butylbenzene	ug/L	<0.24	20	20	25.3	21.4	127	107	71-131	17	30	
n-Propylbenzene	ug/L	<0.10	20	20	22.8	22.0	114	110	67-138	4	30	
Naphthalene	ug/L	<0.48	20	20	18.7	20.1	94	101	60-130	7	30	
o-Xylene	ug/L	<0.16	20	20	23.0	21.8	115	109	69-131	6	30	
p-Isopropyltoluene	ug/L	<0.15	20	20	24.3	22.4	121	112	72-133	8	30	
sec-Butylbenzene	ug/L	<0.15	20	20	27.7	24.3	138	121	73-134	13	30	M1
Styrene	ug/L	<0.19	20	20	22.8	21.6	114	108	72-125	6	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	16.4	15.5	82	78	67-125	6	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	184	179	92	90	64-137	2	30	
tert-Butylbenzene	ug/L	<0.15	20	20	26.4	24.8	132	124	70-143	6	30	
Tetrachloroethene	ug/L	<0.17	20	20	22.8	21.4	114	107	72-129	6	30	
Tetrahydrofuran	ug/L	<2.2	200	200	213	202	106	101	66-128	5	30	
Toluene	ug/L	<0.083	20	20	21.7	20.0	109	100	73-125	8	30	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	25.8	22.2	129	111	62-137	15	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.8	18.4	99	92	61-136	7	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	54.8	54.3	110	109	45-128	1	30	
Trichloroethene	ug/L	<0.15	20	20	25.0	21.5	125	108	74-132	15	30	
Trichlorofluoromethane	ug/L	<0.23	20	20	22.2	24.5	111	122	75-139	10	30	
Vinyl acetate	ug/L	<1.1	20	20	24.9	23.1	125	115	51-135	8	30	
Vinyl chloride	ug/L	<0.092	20	20	27.2	27.9	136	139	68-146	3	30	
Xylene (Total)	ug/L	<0.31	60	60	72.6	69.4	121	116	67-137	5	30	
1,2-Dichloroethane-d4 (S)	%						101	102	75-136			
4-Bromofluorobenzene (S)	%						96	97	75-125			
Toluene-d8 (S)	%						94	94	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494126

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

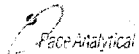
Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494126

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494126001	Asher-GW-100319	EPA 8260B	637340		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: 1 Of 1
Company: CH2M Hill	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh	Regulatory Agency
Address: 999 W. Riverside Ave. Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email:	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave. Denver, CO 80221	State / Location
Phone:	Purchase Order # PEDD# 1497	Page Quote: Contract# 9900758938	
Requested Due Date: 10 Day Standard	Project Name: Freeman WA-Grain Handling Facility	Pace Project Manager: Jennifer Gross	WA / Freeman
	Project #: 1497	Pace Profile #: 36447 / 4	

ITEM #	SAMPLE ID <small>One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique</small>	MATRIX <small>Drinking Water DW Water WT Waste Water WW Product P Sol/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS</small>	CODE <small>(see valid codes to left)</small>	SAMPLE TYPE: (O=GRAIN C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)																													
					DATE	TIME			Y/N	Preservatives								Y/N	Y	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N												
										Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Analyses Test	Low Level VOC's by 8280										6010/74-0-122 Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide -500	Methane, Ethane, Ethene 16K175	CCD 410.4	Nitrate+Nitrite 333.2	4650 Total Phosphorus	6010 Total Iron	MS/MSD Requested
1	Asher-GW-100319			WTG	10/3/19	1000	-9	1															X									X					col	
2																																						
3																																						
4																																						
5																																						
6																																						
7																																						
8																																						
9																																						
10																																						
11																																						
12																																						

WO#: 10494126

10494126

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
							09	Y ~ Y
Short hold analyses are in bold	<i>[Signature]</i>	10/3/19	1530	<i>[Signature]</i>	10-4-19	800	09	Y ~ Y
*Field filtered by client							L1	
							0-6	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: *Karla Savage*

SIGNATURE of SAMPLER: *[Signature]* DATE Signed: *10/3/19*

Sample Condition Upon Receipt

Client Name:

UPRR Jacobs

Project #:

WO#: 10494126

PM: JMG

Due Date: 10/18/19

CLIENT: UPRR_Jacobs

Courier:

Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7821 4575 3632/3610/3621

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.9, 1.1, 0.6</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>true</u>	Cooler Temp Corrected w/temp blank: <u>0.9, 1.1, 0.6</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 10-4-19 JA
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> , Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No See Exception <input type="checkbox"/>
	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot#
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>Shared w/ WO# 10494124</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>225458</u>

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____
 Project Manager Review: [Signature] Date: 10/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

October 10, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

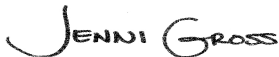
RE: Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494127

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494127

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494127001	LashawAg-GW-100319	Water	10/03/19 11:45	10/04/19 08:50
10494127002	Lashaw-GW-100319	Water	10/03/19 10:45	10/04/19 08:50

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494127001	LashawAg-GW-100319	EPA 8260B	DS2	83	PASI-M
10494127002	Lashaw-GW-100319	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10494127001	LashawAg-GW-100319					
EPA 8260B	Carbon tetrachloride	4.3	ug/L	0.50	10/10/19 03:08	
10494127002	Lashaw-GW-100319					
EPA 8260B	Carbon tetrachloride	0.29J	ug/L	0.50	10/10/19 03:32	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494127

Method: EPA 8260B
Description: 8260B MSV Low Level
Client: UPRR_Jacobs
Date: October 10, 2019

General Information:

2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Lashaw-GW-100319 (Lab ID: 10494127002)
- LashawAg-GW-100319 (Lab ID: 10494127001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 637340

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3435114)
 - Bromomethane
- MS (Lab ID: 3435115)
 - Bromomethane
- MSD (Lab ID: 3435116)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 10, 2019

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3435115)
 - 2,2,4-Trimethylpentane
 - sec-Butylbenzene
- MSD (Lab ID: 3435116)
 - Chloromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3435116)
 - 2,2,4-Trimethylpentane
 - Hexachloro-1,3-butadiene

Additional Comments:

Analyte Comments:

QC Batch: 637340

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3435113)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3435114)
 - 1,2-Dichloroethene (Total)
- Lashaw-GW-100319 (Lab ID: 10494127002)
 - 1,2-Dichloroethene (Total)
- LashawAg-GW-100319 (Lab ID: 10494127001)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3435115)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3435116)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3435113)
 - Dichlorofluoromethane
- LCS (Lab ID: 3435114)
 - Dichlorofluoromethane
- Lashaw-GW-100319 (Lab ID: 10494127002)
 - Dichlorofluoromethane
- LashawAg-GW-100319 (Lab ID: 10494127001)
 - Dichlorofluoromethane
- MS (Lab ID: 3435115)
 - Dichlorofluoromethane
- MSD (Lab ID: 3435116)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 10, 2019

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Sample: LashawAg-GW-100319 Lab ID: 10494127001 Collected: 10/03/19 11:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/10/19 03:08	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/10/19 03:08	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:08	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/10/19 03:08	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:08	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/10/19 03:08	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/10/19 03:08	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:08	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:08	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/10/19 03:08	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:08	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:08	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/10/19 03:08	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/10/19 03:08	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:08	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/10/19 03:08	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/10/19 03:08	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/10/19 03:08	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:08	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:08	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/10/19 03:08	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:08	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/10/19 03:08	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/10/19 03:08	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:08	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/10/19 03:08	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:08	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/10/19 03:08	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/10/19 03:08	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/10/19 03:08	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/10/19 03:08	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/10/19 03:08	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/10/19 03:08	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:08	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:08	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/10/19 03:08	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:08	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/10/19 03:08	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/10/19 03:08	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/10/19 03:08	75-15-0	
Carbon tetrachloride	4.3	ug/L	0.50	0.19	1		10/10/19 03:08	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:08	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/10/19 03:08	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/10/19 03:08	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/10/19 03:08	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/10/19 03:08	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Sample: LashawAg-GW-100319 **Lab ID: 10494127001** Collected: 10/03/19 11:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/10/19 03:08	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/10/19 03:08	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/10/19 03:08	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/10/19 03:08	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/10/19 03:08	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:08	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:08	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/10/19 03:08	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/10/19 03:08	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/10/19 03:08	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/10/19 03:08	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/10/19 03:08	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:08	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/10/19 03:08	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/10/19 03:08	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/10/19 03:08	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/10/19 03:08	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/10/19 03:08	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/10/19 03:08	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/10/19 03:08	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/10/19 03:08	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/10/19 03:08	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:08	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/10/19 03:08	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:08	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:08	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:08	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:08	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/10/19 03:08	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/10/19 03:08	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:08	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:08	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/10/19 03:08	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/10/19 03:08	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	75-136		1		10/10/19 03:08	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1		10/10/19 03:08	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		10/10/19 03:08	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Project No.: 10494127

Sample: **Lashaw-GW-100319** Lab ID: **10494127002** Collected: 10/03/19 10:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/10/19 03:32	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/10/19 03:32	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:32	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/10/19 03:32	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:32	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/10/19 03:32	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/10/19 03:32	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:32	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:32	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/10/19 03:32	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:32	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:32	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/10/19 03:32	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/10/19 03:32	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:32	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/10/19 03:32	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/10/19 03:32	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/10/19 03:32	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:32	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:32	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/10/19 03:32	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:32	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/10/19 03:32	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/10/19 03:32	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:32	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/10/19 03:32	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:32	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/10/19 03:32	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/10/19 03:32	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/10/19 03:32	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/10/19 03:32	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/10/19 03:32	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/10/19 03:32	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:32	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:32	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/10/19 03:32	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:32	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/10/19 03:32	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/10/19 03:32	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/10/19 03:32	75-15-0	
Carbon tetrachloride	0.29J	ug/L	0.50	0.19	1		10/10/19 03:32	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:32	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/10/19 03:32	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/10/19 03:32	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/10/19 03:32	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/10/19 03:32	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Grain Handling Faci

Sample Project No.: 10494127

Sample: Lashaw-GW-100319 **Lab ID: 10494127002** Collected: 10/03/19 10:45 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/10/19 03:32	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/10/19 03:32	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/10/19 03:32	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/10/19 03:32	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/10/19 03:32	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:32	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:32	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/10/19 03:32	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/10/19 03:32	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/10/19 03:32	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/10/19 03:32	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/10/19 03:32	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:32	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/10/19 03:32	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/10/19 03:32	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/10/19 03:32	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/10/19 03:32	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/10/19 03:32	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/10/19 03:32	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/10/19 03:32	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/10/19 03:32	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/10/19 03:32	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:32	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/10/19 03:32	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:32	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:32	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:32	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:32	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/10/19 03:32	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/10/19 03:32	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:32	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:32	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/10/19 03:32	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/10/19 03:32	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		10/10/19 03:32	17060-07-0	
Toluene-d8 (S)	96	%	75-125		1		10/10/19 03:32	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		10/10/19 03:32	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

QC Batch: 637340 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494127001, 10494127002

METHOD BLANK: 3435113 Matrix: Water

Associated Lab Samples: 10494127001, 10494127002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/09/19 19:36	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/09/19 19:36	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/09/19 19:36	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/09/19 19:36	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/09/19 19:36	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/09/19 19:36	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/09/19 19:36	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/09/19 19:36	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/09/19 19:36	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/09/19 19:36	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/09/19 19:36	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/09/19 19:36	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/09/19 19:36	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/09/19 19:36	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/09/19 19:36	
Acetone	ug/L	<9.2	20.0	9.2	10/09/19 19:36	
Acrolein	ug/L	<3.2	10.0	3.2	10/09/19 19:36	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/09/19 19:36	
Benzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/09/19 19:36	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/09/19 19:36	
Bromomethane	ug/L	<1.8	4.0	1.8	10/09/19 19:36	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/09/19 19:36	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

METHOD BLANK: 3435113

Matrix: Water

Associated Lab Samples: 10494127001, 10494127002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Chloroethane	ug/L	<0.49	4.0	0.49	10/09/19 19:36	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/09/19 19:36	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/09/19 19:36	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/09/19 19:36	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/09/19 19:36	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/09/19 19:36	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/09/19 19:36	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/09/19 19:36	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/09/19 19:36	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/09/19 19:36	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/09/19 19:36	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Naphthalene	ug/L	<0.48	1.0	0.48	10/09/19 19:36	
o-Xylene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Styrene	ug/L	<0.19	0.50	0.19	10/09/19 19:36	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/09/19 19:36	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/09/19 19:36	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/09/19 19:36	
Toluene	ug/L	<0.083	0.50	0.083	10/09/19 19:36	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/09/19 19:36	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/09/19 19:36	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/09/19 19:36	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/09/19 19:36	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/09/19 19:36	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/09/19 19:36	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/09/19 19:36	
1,2-Dichloroethane-d4 (S)	%	98	75-136		10/09/19 19:36	
4-Bromofluorobenzene (S)	%	100	75-125		10/09/19 19:36	
Toluene-d8 (S)	%	97	75-125		10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.2	86	68-141	
1,1,1-Trichloroethane	ug/L	20	19.4	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	16.9	84	73-125	
1,1,2-Trichloroethane	ug/L	20	18.0	90	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.5	98	69-132	
1,1-Dichloroethane	ug/L	20	18.8	94	73-125	
1,1-Dichloroethene	ug/L	20	19.2	96	71-126	
1,1-Dichloropropene	ug/L	20	19.3	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	15.9	79	72-126	
1,2,3-Trichloropropane	ug/L	20	16.6	83	75-126	
1,2,4-Trichlorobenzene	ug/L	20	15.0	75	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	39.7	79	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	17.4	87	75-129	
1,2-Dichlorobenzene	ug/L	20	17.1	86	75-129	
1,2-Dichloroethane	ug/L	20	17.3	87	75-125	
1,2-Dichloroethene (Total)	ug/L	40	37.7	94	74-125	N2
1,2-Dichloropropane	ug/L	20	18.0	90	75-125	
1,3,5-Trimethylbenzene	ug/L	20	17.2	86	75-127	
1,3-Dichlorobenzene	ug/L	20	17.0	85	75-126	
1,3-Dichloropropane	ug/L	20	18.0	90	75-125	
1,4-Dichlorobenzene	ug/L	20	16.5	83	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	313	78	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.1	96	72-128	
2,2-Dichloropropane	ug/L	20	17.1	86	65-138	
2-Butanone (MEK)	ug/L	100	102	102	59-144	
2-Chlorotoluene	ug/L	20	16.7	83	75-127	
2-Hexanone	ug/L	100	93.2	93	73-134	
4-Chlorotoluene	ug/L	20	18.1	91	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.9	92	62-141	
Acetone	ug/L	100	108	108	60-137	
Acrolein	ug/L	200	194	97	60-141	
Acrylonitrile	ug/L	200	198	99	75-129	
Benzene	ug/L	20	18.9	95	73-125	
Bromobenzene	ug/L	20	16.4	82	73-125	
Bromochloromethane	ug/L	20	18.0	90	75-135	
Bromodichloromethane	ug/L	20	19.8	99	75-125	
Bromoform	ug/L	20	18.6	93	67-136	
Bromomethane	ug/L	20	23.8	119	30-150	SS
Carbon disulfide	ug/L	20	18.3	91	47-137	
Carbon tetrachloride	ug/L	20	21.4	107	75-125	
Chlorobenzene	ug/L	20	17.2	86	75-125	
Chloroethane	ug/L	20	21.2	106	63-136	
Chloroform	ug/L	20	18.6	93	73-128	
Chloromethane	ug/L	20	21.4	107	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.6	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.2	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	18.9	94	75-125	
Dibromomethane	ug/L	20	17.9	89	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	19.1	96	68-127	
Diisopropyl ether	ug/L	20	18.7	94	71-131	
Ethyl-tert-butyl ether	ug/L	20	14.4	72	75-125	L2
Ethylbenzene	ug/L	20	18.3	91	75-125	
Hexachloro-1,3-butadiene	ug/L	20	15.2	76	72-134	
Isopropylbenzene (Cumene)	ug/L	20	18.4	92	75-125	
m&p-Xylene	ug/L	40	38.8	97	75-126	
Methyl-tert-butyl ether	ug/L	20	16.2	81	75-125	
Methylene Chloride	ug/L	20	20.3	102	70-125	
n-Butylbenzene	ug/L	20	16.9	85	75-126	
n-Propylbenzene	ug/L	20	17.0	85	73-127	
Naphthalene	ug/L	20	15.5	78	63-128	
o-Xylene	ug/L	20	18.1	90	75-128	
p-Isopropyltoluene	ug/L	20	17.5	87	75-125	
sec-Butylbenzene	ug/L	20	19.3	96	75-126	
Styrene	ug/L	20	18.7	94	75-125	
tert-Amylmethyl ether	ug/L	20	12.9	65	75-125	L2
tert-Butyl Alcohol	ug/L	200	153	77	75-130	
tert-Butylbenzene	ug/L	20	18.9	95	75-131	
Tetrachloroethene	ug/L	20	16.5	83	74-125	
Tetrahydrofuran	ug/L	200	185	93	64-138	
Toluene	ug/L	20	17.4	87	74-125	
trans-1,2-Dichloroethene	ug/L	20	19.1	95	68-128	
trans-1,3-Dichloropropene	ug/L	20	15.9	79	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.3	99	60-127	
Trichloroethene	ug/L	20	19.2	96	75-127	
Trichlorofluoromethane	ug/L	20	18.7	93	72-133	
Vinyl acetate	ug/L	20	19.1	95	61-129	
Vinyl chloride	ug/L	20	22.6	113	75-128	
Xylene (Total)	ug/L	60	56.9	95	75-125	
1,2-Dichloroethane-d4 (S)	%			98	75-136	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			94	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3435115 3435116

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494126001 Result	Spike Conc.	Spike Conc.	3435116 Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	21.7	19.8	109	99	75-140	9	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.5	22.8	133	114	74-136	15	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.0	18.9	95	95	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.6	20.5	108	102	75-126	5	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3435115			3435116							
Parameter	Units	10494126001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.2	24.7	136	123	65-146	10	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	24.4	22.5	122	112	68-132	8	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	25.6	21.7	128	108	66-139	17	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	26.3	23.2	131	116	67-134	12	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	21.4	19.9	107	99	67-129	7	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.7	20.0	98	100	69-128	1	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	21.5	20.1	107	100	65-140	7	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.4	24.5	127	122	71-133	4	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	43.9	44.9	88	90	54-138	2	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20.8	20.3	104	101	68-125	2	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.8	20.1	104	100	74-136	4	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	22.0	20.2	110	101	68-125	8	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	49.8	42.7	125	107	71-126	15	30 N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.7	19.7	109	98	67-125	10	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	22.6	21.9	113	109	68-137	3	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	21.5	21.0	107	105	75-131	2	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	21.8	20.4	109	102	71-125	6	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	20.3	19.8	102	99	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	410	385	103	96	68-125	6	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	31.5	23.2	158	116	54-129	31	30 M1,R1	
2,2-Dichloropropane	ug/L	<0.17	20	20	25.9	21.4	130	107	69-139	19	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	108	106	108	106	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	20	20	21.8	21.1	109	105	75-134	3	30	
2-Hexanone	ug/L	<0.88	100	100	104	103	104	103	58-137	1	30	
4-Chlorotoluene	ug/L	<0.13	20	20	22.5	21.9	113	110	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	106	104	106	104	60-129	1	30	
Acetone	ug/L	<9.2	100	100	110	107	110	107	62-132	3	30	
Acrolein	ug/L	<3.2	200	200	250	237	125	118	30-150	5	30	
Acrylonitrile	ug/L	<0.91	200	200	232	223	116	112	68-125	4	30	
Benzene	ug/L	<0.10	20	20	24.7	21.6	123	108	68-125	13	30	
Bromobenzene	ug/L	<0.21	20	20	19.7	18.9	98	95	73-126	4	30	
Bromochloromethane	ug/L	<0.27	20	20	22.0	20.6	110	103	66-143	6	30	
Bromodichloromethane	ug/L	<0.22	20	20	23.6	22.7	118	114	74-125	4	30	
Bromoform	ug/L	<0.80	20	20	21.3	20.4	106	102	64-134	4	30	
Bromomethane	ug/L	<1.8	20	20	26.9	28.8	134	144	30-150	7	30 SS	
Carbon disulfide	ug/L	<0.19	20	20	27.6	21.7	138	109	43-147	24	30	
Carbon tetrachloride	ug/L	<0.19	20	20	27.7	24.1	139	121	71-143	14	30	
Chlorobenzene	ug/L	<0.17	20	20	21.3	20.2	106	101	75-125	5	30	
Chloroethane	ug/L	<0.49	20	20	23.4	25.6	117	128	75-129	9	30	
Chloroform	ug/L	<0.45	20	20	23.8	21.0	119	105	66-132	12	30	
Chloromethane	ug/L	<0.48	20	20	27.2	28.2	136	141	53-137	4	30 M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	24.0	20.5	120	102	67-133	16	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	22.8	20.5	114	102	66-125	11	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494127

Parameter	Units	10494126001		MS		MSD		3435115		3435116		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD		
Dibromochloromethane	ug/L	<0.12	20	20	23.4	22.4	117	112	62-132	4	30	
Dibromomethane	ug/L	<0.16	20	20	20.9	19.5	105	98	67-125	7	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.0	27.2	130	136	71-142	4	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	21.4	23.3	107	117	70-131	9	30	
Diisopropyl ether	ug/L	<0.13	20	20	23.4	21.6	117	108	63-131	8	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	18.4	17.6	92	88	66-128	5	30	
Ethylbenzene	ug/L	<0.14	20	20	23.7	22.0	118	110	74-126	7	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.1	19.1	131	95	68-143	31	30	R1
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.2	23.2	121	116	74-130	4	30	
m&p-Xylene	ug/L	<0.31	40	40	49.6	47.6	124	119	69-132	4	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.9	19.5	100	97	65-131	2	30	
Methylene Chloride	ug/L	<0.98	20	20	23.8	22.0	119	110	57-125	8	30	
n-Butylbenzene	ug/L	<0.24	20	20	25.3	21.4	127	107	71-131	17	30	
n-Propylbenzene	ug/L	<0.10	20	20	22.8	22.0	114	110	67-138	4	30	
Naphthalene	ug/L	<0.48	20	20	18.7	20.1	94	101	60-130	7	30	
o-Xylene	ug/L	<0.16	20	20	23.0	21.8	115	109	69-131	6	30	
p-Isopropyltoluene	ug/L	<0.15	20	20	24.3	22.4	121	112	72-133	8	30	
sec-Butylbenzene	ug/L	<0.15	20	20	27.7	24.3	138	121	73-134	13	30	M1
Styrene	ug/L	<0.19	20	20	22.8	21.6	114	108	72-125	6	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	16.4	15.5	82	78	67-125	6	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	184	179	92	90	64-137	2	30	
tert-Butylbenzene	ug/L	<0.15	20	20	26.4	24.8	132	124	70-143	6	30	
Tetrachloroethene	ug/L	<0.17	20	20	22.8	21.4	114	107	72-129	6	30	
Tetrahydrofuran	ug/L	<2.2	200	200	213	202	106	101	66-128	5	30	
Toluene	ug/L	<0.083	20	20	21.7	20.0	109	100	73-125	8	30	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	25.8	22.2	129	111	62-137	15	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.8	18.4	99	92	61-136	7	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	54.8	54.3	110	109	45-128	1	30	
Trichloroethene	ug/L	<0.15	20	20	25.0	21.5	125	108	74-132	15	30	
Trichlorofluoromethane	ug/L	<0.23	20	20	22.2	24.5	111	122	75-139	10	30	
Vinyl acetate	ug/L	<1.1	20	20	24.9	23.1	125	115	51-135	8	30	
Vinyl chloride	ug/L	<0.092	20	20	27.2	27.9	136	139	68-146	3	30	
Xylene (Total)	ug/L	<0.31	60	60	72.6	69.4	121	116	67-137	5	30	
1,2-Dichloroethane-d4 (S)	%						101	102	75-136			
4-Bromofluorobenzene (S)	%						96	97	75-125			
Toluene-d8 (S)	%						94	94	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Grain Handling Faci

Pace Project No.: 10494127

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Grain Handling Faci
Pace Project No.: 10494127

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494127001	LashawAg-GW-100319	EPA 8260B	637340		
10494127002	Lashaw-GW-100319	EPA 8260B	637340		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Section B

Required Project Information:

Section C


Invoice Information:

Company: CH2M Hill		Report To: Mark Ochsner, Brad Ostapkowicz		Attention: Anne Walsh	
Address: 999 W. Riverside Ave, Suite 500 Spokane WA 99201		Copy To: Steve Demus, Jonathan Espinoza Copy To: David Hodson, UPRR-Sysdat@ghd.com		Company: UPRR	
Email:		Purchase Order # PEDD# 1497		Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone:		Project Name: Freeman WA-Grain Handling Facility		Contract# 9900758938	
Requested Due Date: 10 Day Standard		Project #: 1497		Pace Project Manager: Jennifer Gross	
				Pace Profile #: 36447 / 4	

Regulatory Agency
State / Location
WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, -) Sample IDs must be unique	MATRIX Drinking Water: DW Water: WT Waste Water: WW Product: P Soil/Solid: OL Oil: OL Wipe: WP Air: AR Direct Test: OT TS	CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST Y/N	Requested Analysis Filtered (Y/N)																													
						DATE	TIME					Unpreserved	H2SO4	HNO3	HCl	NaOH / Zn Acetate	Other	Low Level VOCs by 8230	601074:0:122 Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2640 TDS	TOC 53.0	Sulfide 4500	Methane, Ethane, Ethane RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorous	6610 Total Iron	MS/MSP Requested											
1	LashawAg-Gw-100319	WT	G		G	10/3/19	1145	-	3		X	X																													CO1
2	Lashaw-Gw-100319	WT	G		G	10/3/19	1045	-	3		X	X																											CO2		
3																																									
4																																									
5																																									
6																																									
7																																									
8																																									
9																																									
10																																									
11																																									
12																																									

WO#: 10494127



10494127

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Short hold analyses are in bold	<i>Kel</i> <i>Jacob</i>	10/3/19	1530	<i>Alp</i>	10-4-19	850	0.9	Y	N	Y
*Field filtered by client							1.1			
							0.6			

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: <i>Karla Savage</i>	
SIGNATURE OF SAMPLER: <i>Kel</i>	DATE Signed: 10/3/19



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.29

Document Revised: 23Aug2019
Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: UPRR Jacobs

Project #: **WO# : 10494127**

PM: JMG Due Date: 10/18/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7821 4575 3632/3610/3621

Custody Seal on Cooler/Box Present? Yes No

Packing Material: Bubble Wrap Bubble Bags None Other: _____

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489)

Seals Intact? Yes No

Biological Tissue Frozen? Yes No N/A

Temp Blank? Yes No

Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.9, 1.1, 0.4</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>true</u>	Cooler Temp Corrected w/temp blank: <u>0.9, 1.1, 0.6</u> °C	

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 10-4-19 JA

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: <u>DO</u> , Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>Shared w/ WO# 10494124</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>225458</u>

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: [Signature]

Date: 10/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: [Signature] Page 23 of 23

October 10, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

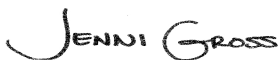
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494129

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494129001	Silva-GW-100319	Water	10/03/19 09:15	10/04/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494129001	Silva-GW-100319	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 10, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Silva-GW-100319 (Lab ID: 10494129001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 637340

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3435114)
 - Bromomethane
- MS (Lab ID: 3435115)
 - Bromomethane
- MSD (Lab ID: 3435116)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3435115)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 10, 2019

QC Batch: 637340

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494126001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- 2,2,4-Trimethylpentane
- sec-Butylbenzene
- MSD (Lab ID: 3435116)
- Chloromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3435116)
- 2,2,4-Trimethylpentane
- Hexachloro-1,3-butadiene

Additional Comments:

Analyte Comments:

QC Batch: 637340

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3435113)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3435114)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3435115)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3435116)
 - 1,2-Dichloroethene (Total)
- Silva-GW-100319 (Lab ID: 10494129001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3435113)
 - Dichlorofluoromethane
- LCS (Lab ID: 3435114)
 - Dichlorofluoromethane
- MS (Lab ID: 3435115)
 - Dichlorofluoromethane
- MSD (Lab ID: 3435116)
 - Dichlorofluoromethane
- Silva-GW-100319 (Lab ID: 10494129001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Sample: **Silva-GW-100319** Lab ID: **10494129001** Collected: 10/03/19 09:15 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/10/19 03:56	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/10/19 03:56	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:56	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/10/19 03:56	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:56	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/10/19 03:56	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/10/19 03:56	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:56	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:56	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/10/19 03:56	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:56	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/10/19 03:56	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/10/19 03:56	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/10/19 03:56	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:56	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/10/19 03:56	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/10/19 03:56	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/10/19 03:56	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:56	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:56	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/10/19 03:56	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:56	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/10/19 03:56	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/10/19 03:56	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/10/19 03:56	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/10/19 03:56	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:56	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/10/19 03:56	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/10/19 03:56	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/10/19 03:56	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/10/19 03:56	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/10/19 03:56	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/10/19 03:56	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:56	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/10/19 03:56	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/10/19 03:56	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/10/19 03:56	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/10/19 03:56	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/10/19 03:56	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/10/19 03:56	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/10/19 03:56	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:56	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/10/19 03:56	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/10/19 03:56	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/10/19 03:56	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/10/19 03:56	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Project No.: 10494129

Sample: Silva-GW-100319 **Lab ID: 10494129001** Collected: 10/03/19 09:15 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/10/19 03:56	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/10/19 03:56	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/10/19 03:56	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/10/19 03:56	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/10/19 03:56	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/10/19 03:56	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:56	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/10/19 03:56	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/10/19 03:56	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/10/19 03:56	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/10/19 03:56	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/10/19 03:56	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/10/19 03:56	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/10/19 03:56	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/10/19 03:56	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/10/19 03:56	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/10/19 03:56	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/10/19 03:56	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/10/19 03:56	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/10/19 03:56	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/10/19 03:56	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/10/19 03:56	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/10/19 03:56	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/10/19 03:56	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/10/19 03:56	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/10/19 03:56	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:56	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:56	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/10/19 03:56	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/10/19 03:56	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/10/19 03:56	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/10/19 03:56	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/10/19 03:56	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/10/19 03:56	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		10/10/19 03:56	17060-07-0	
Toluene-d8 (S)	97	%	75-125		1		10/10/19 03:56	2037-26-5	
4-Bromofluorobenzene (S)	93	%	75-125		1		10/10/19 03:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494129

QC Batch: 637340 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494129001

METHOD BLANK: 3435113 Matrix: Water
Associated Lab Samples: 10494129001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/09/19 19:36	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/09/19 19:36	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/09/19 19:36	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/09/19 19:36	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/09/19 19:36	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/09/19 19:36	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/09/19 19:36	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/09/19 19:36	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/09/19 19:36	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/09/19 19:36	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/09/19 19:36	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/09/19 19:36	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/09/19 19:36	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/09/19 19:36	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/09/19 19:36	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/09/19 19:36	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/09/19 19:36	
Acetone	ug/L	<9.2	20.0	9.2	10/09/19 19:36	
Acrolein	ug/L	<3.2	10.0	3.2	10/09/19 19:36	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/09/19 19:36	
Benzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/09/19 19:36	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/09/19 19:36	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/09/19 19:36	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/09/19 19:36	
Bromomethane	ug/L	<1.8	4.0	1.8	10/09/19 19:36	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/09/19 19:36	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/09/19 19:36	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

METHOD BLANK: 3435113

Matrix: Water

Associated Lab Samples: 10494129001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Chloroethane	ug/L	<0.49	4.0	0.49	10/09/19 19:36	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/09/19 19:36	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/09/19 19:36	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/09/19 19:36	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/09/19 19:36	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/09/19 19:36	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/09/19 19:36	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/09/19 19:36	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/09/19 19:36	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/09/19 19:36	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/09/19 19:36	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/09/19 19:36	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/09/19 19:36	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/09/19 19:36	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/09/19 19:36	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/09/19 19:36	
Naphthalene	ug/L	<0.48	1.0	0.48	10/09/19 19:36	
o-Xylene	ug/L	<0.16	0.50	0.16	10/09/19 19:36	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Styrene	ug/L	<0.19	0.50	0.19	10/09/19 19:36	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/09/19 19:36	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/09/19 19:36	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/09/19 19:36	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/09/19 19:36	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/09/19 19:36	
Toluene	ug/L	<0.083	0.50	0.083	10/09/19 19:36	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/09/19 19:36	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/09/19 19:36	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/09/19 19:36	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/09/19 19:36	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/09/19 19:36	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/09/19 19:36	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/09/19 19:36	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/09/19 19:36	
1,2-Dichloroethane-d4 (S)	%	98	75-136		10/09/19 19:36	
4-Bromofluorobenzene (S)	%	100	75-125		10/09/19 19:36	
Toluene-d8 (S)	%	97	75-125		10/09/19 19:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.2	86	68-141	
1,1,1-Trichloroethane	ug/L	20	19.4	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	16.9	84	73-125	
1,1,2-Trichloroethane	ug/L	20	18.0	90	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.5	98	69-132	
1,1-Dichloroethane	ug/L	20	18.8	94	73-125	
1,1-Dichloroethene	ug/L	20	19.2	96	71-126	
1,1-Dichloropropene	ug/L	20	19.3	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	15.9	79	72-126	
1,2,3-Trichloropropane	ug/L	20	16.6	83	75-126	
1,2,4-Trichlorobenzene	ug/L	20	15.0	75	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.2	96	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	39.7	79	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	17.4	87	75-129	
1,2-Dichlorobenzene	ug/L	20	17.1	86	75-129	
1,2-Dichloroethane	ug/L	20	17.3	87	75-125	
1,2-Dichloroethene (Total)	ug/L	40	37.7	94	74-125	N2
1,2-Dichloropropane	ug/L	20	18.0	90	75-125	
1,3,5-Trimethylbenzene	ug/L	20	17.2	86	75-127	
1,3-Dichlorobenzene	ug/L	20	17.0	85	75-126	
1,3-Dichloropropane	ug/L	20	18.0	90	75-125	
1,4-Dichlorobenzene	ug/L	20	16.5	83	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	313	78	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.1	96	72-128	
2,2-Dichloropropane	ug/L	20	17.1	86	65-138	
2-Butanone (MEK)	ug/L	100	102	102	59-144	
2-Chlorotoluene	ug/L	20	16.7	83	75-127	
2-Hexanone	ug/L	100	93.2	93	73-134	
4-Chlorotoluene	ug/L	20	18.1	91	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.9	92	62-141	
Acetone	ug/L	100	108	108	60-137	
Acrolein	ug/L	200	194	97	60-141	
Acrylonitrile	ug/L	200	198	99	75-129	
Benzene	ug/L	20	18.9	95	73-125	
Bromobenzene	ug/L	20	16.4	82	73-125	
Bromochloromethane	ug/L	20	18.0	90	75-135	
Bromodichloromethane	ug/L	20	19.8	99	75-125	
Bromoform	ug/L	20	18.6	93	67-136	
Bromomethane	ug/L	20	23.8	119	30-150	SS
Carbon disulfide	ug/L	20	18.3	91	47-137	
Carbon tetrachloride	ug/L	20	21.4	107	75-125	
Chlorobenzene	ug/L	20	17.2	86	75-125	
Chloroethane	ug/L	20	21.2	106	63-136	
Chloroform	ug/L	20	18.6	93	73-128	
Chloromethane	ug/L	20	21.4	107	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.6	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.2	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

LABORATORY CONTROL SAMPLE: 3435114

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	18.9	94	75-125	
Dibromomethane	ug/L	20	17.9	89	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	19.1	96	68-127	
Diisopropyl ether	ug/L	20	18.7	94	71-131	
Ethyl-tert-butyl ether	ug/L	20	14.4	72	75-125	L2
Ethylbenzene	ug/L	20	18.3	91	75-125	
Hexachloro-1,3-butadiene	ug/L	20	15.2	76	72-134	
Isopropylbenzene (Cumene)	ug/L	20	18.4	92	75-125	
m&p-Xylene	ug/L	40	38.8	97	75-126	
Methyl-tert-butyl ether	ug/L	20	16.2	81	75-125	
Methylene Chloride	ug/L	20	20.3	102	70-125	
n-Butylbenzene	ug/L	20	16.9	85	75-126	
n-Propylbenzene	ug/L	20	17.0	85	73-127	
Naphthalene	ug/L	20	15.5	78	63-128	
o-Xylene	ug/L	20	18.1	90	75-128	
p-Isopropyltoluene	ug/L	20	17.5	87	75-125	
sec-Butylbenzene	ug/L	20	19.3	96	75-126	
Styrene	ug/L	20	18.7	94	75-125	
tert-Amylmethyl ether	ug/L	20	12.9	65	75-125	L2
tert-Butyl Alcohol	ug/L	200	153	77	75-130	
tert-Butylbenzene	ug/L	20	18.9	95	75-131	
Tetrachloroethene	ug/L	20	16.5	83	74-125	
Tetrahydrofuran	ug/L	200	185	93	64-138	
Toluene	ug/L	20	17.4	87	74-125	
trans-1,2-Dichloroethene	ug/L	20	19.1	95	68-128	
trans-1,3-Dichloropropene	ug/L	20	15.9	79	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.3	99	60-127	
Trichloroethene	ug/L	20	19.2	96	75-127	
Trichlorofluoromethane	ug/L	20	18.7	93	72-133	
Vinyl acetate	ug/L	20	19.1	95	61-129	
Vinyl chloride	ug/L	20	22.6	113	75-128	
Xylene (Total)	ug/L	60	56.9	95	75-125	
1,2-Dichloroethane-d4 (S)	%			98	75-136	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			94	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3435115 3435116

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494126001 Result	Spike Conc.	Spike Conc.	3435116 Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	21.7	19.8	109	99	75-140	9	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.5	22.8	133	114	74-136	15	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.0	18.9	95	95	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.6	20.5	108	102	75-126	5	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3435115			3435116							
Parameter	Units	10494126001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.2	24.7	136	123	65-146	10	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	24.4	22.5	122	112	68-132	8	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	25.6	21.7	128	108	66-139	17	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	26.3	23.2	131	116	67-134	12	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	21.4	19.9	107	99	67-129	7	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.7	20.0	98	100	69-128	1	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	21.5	20.1	107	100	65-140	7	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.4	24.5	127	122	71-133	4	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	43.9	44.9	88	90	54-138	2	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20.8	20.3	104	101	68-125	2	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.8	20.1	104	100	74-136	4	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	22.0	20.2	110	101	68-125	8	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	49.8	42.7	125	107	71-126	15	30 N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.7	19.7	109	98	67-125	10	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	22.6	21.9	113	109	68-137	3	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	21.5	21.0	107	105	75-131	2	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	21.8	20.4	109	102	71-125	6	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	20.3	19.8	102	99	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	410	385	103	96	68-125	6	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	31.5	23.2	158	116	54-129	31	30 M1,R1	
2,2-Dichloropropane	ug/L	<0.17	20	20	25.9	21.4	130	107	69-139	19	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	108	106	108	106	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	20	20	21.8	21.1	109	105	75-134	3	30	
2-Hexanone	ug/L	<0.88	100	100	104	103	104	103	58-137	1	30	
4-Chlorotoluene	ug/L	<0.13	20	20	22.5	21.9	113	110	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	106	104	106	104	60-129	1	30	
Acetone	ug/L	<9.2	100	100	110	107	110	107	62-132	3	30	
Acrolein	ug/L	<3.2	200	200	250	237	125	118	30-150	5	30	
Acrylonitrile	ug/L	<0.91	200	200	232	223	116	112	68-125	4	30	
Benzene	ug/L	<0.10	20	20	24.7	21.6	123	108	68-125	13	30	
Bromobenzene	ug/L	<0.21	20	20	19.7	18.9	98	95	73-126	4	30	
Bromochloromethane	ug/L	<0.27	20	20	22.0	20.6	110	103	66-143	6	30	
Bromodichloromethane	ug/L	<0.22	20	20	23.6	22.7	118	114	74-125	4	30	
Bromoform	ug/L	<0.80	20	20	21.3	20.4	106	102	64-134	4	30	
Bromomethane	ug/L	<1.8	20	20	26.9	28.8	134	144	30-150	7	30 SS	
Carbon disulfide	ug/L	<0.19	20	20	27.6	21.7	138	109	43-147	24	30	
Carbon tetrachloride	ug/L	<0.19	20	20	27.7	24.1	139	121	71-143	14	30	
Chlorobenzene	ug/L	<0.17	20	20	21.3	20.2	106	101	75-125	5	30	
Chloroethane	ug/L	<0.49	20	20	23.4	25.6	117	128	75-129	9	30	
Chloroform	ug/L	<0.45	20	20	23.8	21.0	119	105	66-132	12	30	
Chloromethane	ug/L	<0.48	20	20	27.2	28.2	136	141	53-137	4	30 M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	24.0	20.5	120	102	67-133	16	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	22.8	20.5	114	102	66-125	11	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Parameter	Units	10494126001		MS		MSD		3435115		3435116		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD		
Dibromochloromethane	ug/L	<0.12	20	20	23.4	22.4	117	112	62-132	4	30	
Dibromomethane	ug/L	<0.16	20	20	20.9	19.5	105	98	67-125	7	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.0	27.2	130	136	71-142	4	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	21.4	23.3	107	117	70-131	9	30	
Diisopropyl ether	ug/L	<0.13	20	20	23.4	21.6	117	108	63-131	8	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	18.4	17.6	92	88	66-128	5	30	
Ethylbenzene	ug/L	<0.14	20	20	23.7	22.0	118	110	74-126	7	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.1	19.1	131	95	68-143	31	30	R1
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.2	23.2	121	116	74-130	4	30	
m&p-Xylene	ug/L	<0.31	40	40	49.6	47.6	124	119	69-132	4	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	19.9	19.5	100	97	65-131	2	30	
Methylene Chloride	ug/L	<0.98	20	20	23.8	22.0	119	110	57-125	8	30	
n-Butylbenzene	ug/L	<0.24	20	20	25.3	21.4	127	107	71-131	17	30	
n-Propylbenzene	ug/L	<0.10	20	20	22.8	22.0	114	110	67-138	4	30	
Naphthalene	ug/L	<0.48	20	20	18.7	20.1	94	101	60-130	7	30	
o-Xylene	ug/L	<0.16	20	20	23.0	21.8	115	109	69-131	6	30	
p-Isopropyltoluene	ug/L	<0.15	20	20	24.3	22.4	121	112	72-133	8	30	
sec-Butylbenzene	ug/L	<0.15	20	20	27.7	24.3	138	121	73-134	13	30	M1
Styrene	ug/L	<0.19	20	20	22.8	21.6	114	108	72-125	6	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	16.4	15.5	82	78	67-125	6	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	184	179	92	90	64-137	2	30	
tert-Butylbenzene	ug/L	<0.15	20	20	26.4	24.8	132	124	70-143	6	30	
Tetrachloroethene	ug/L	<0.17	20	20	22.8	21.4	114	107	72-129	6	30	
Tetrahydrofuran	ug/L	<2.2	200	200	213	202	106	101	66-128	5	30	
Toluene	ug/L	<0.083	20	20	21.7	20.0	109	100	73-125	8	30	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	25.8	22.2	129	111	62-137	15	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	19.8	18.4	99	92	61-136	7	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	54.8	54.3	110	109	45-128	1	30	
Trichloroethene	ug/L	<0.15	20	20	25.0	21.5	125	108	74-132	15	30	
Trichlorofluoromethane	ug/L	<0.23	20	20	22.2	24.5	111	122	75-139	10	30	
Vinyl acetate	ug/L	<1.1	20	20	24.9	23.1	125	115	51-135	8	30	
Vinyl chloride	ug/L	<0.092	20	20	27.2	27.9	136	139	68-146	3	30	
Xylene (Total)	ug/L	<0.31	60	60	72.6	69.4	121	116	67-137	5	30	
1,2-Dichloroethane-d4 (S)	%						101	102	75-136			
4-Bromofluorobenzene (S)	%						96	97	75-125			
Toluene-d8 (S)	%						94	94	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494129

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494129001	Silva-GW-100319	EPA 8260B	637340		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: UPRR Jacobs

Project #: **WO# : 10494129**

PM: JMG Due Date: 10/18/19

CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7021 4575 3632/3610/3621

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.9, 1.1, 0.6</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>True</u>	Cooler Temp Corrected w/temp blank: <u>0.9, 1.1, 0.6</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____)

Date/Initials of Person Examining Contents: 10-4-19 JA

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: <input checked="" type="checkbox"/> DO, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Shared w/ WO# 10494129
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>225458</u>

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: [Signature]

Date: 10/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

October 16, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

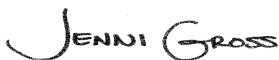
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494130

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494130001	Reed-GW-100319	Water	10/03/19 13:30	10/04/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10494130001	Reed-GW-100319	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 16, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Reed-GW-100319 (Lab ID: 10494130001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 638830

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3442453)
 - Bromomethane
- MS (Lab ID: 3442454)
 - Bromomethane
- MSD (Lab ID: 3442455)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 638830

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 3442452)
 - Acrolein
- LCS (Lab ID: 3442453)
 - Acrolein
- MS (Lab ID: 3442454)
 - Acrolein
- MSD (Lab ID: 3442455)
 - Acrolein
- Reed-GW-100319 (Lab ID: 10494130001)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 16, 2019

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 638830

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494130001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3442454)
 - 1,2-Dichloropropane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3442455)
 - 1,2-Dichloropropane

Additional Comments:

Analyte Comments:

QC Batch: 638830

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3442452)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3442453)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3442454)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3442455)
 - 1,2-Dichloroethene (Total)
- Reed-GW-100319 (Lab ID: 10494130001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3442452)
 - Dichlorofluoromethane
- LCS (Lab ID: 3442453)
 - Dichlorofluoromethane
- MS (Lab ID: 3442454)
 - Dichlorofluoromethane
- MSD (Lab ID: 3442455)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 16, 2019

Analyte Comments:

QC Batch: 638830

- Reed-GW-100319 (Lab ID: 10494130001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Sample: Reed-GW-100319 **Lab ID: 10494130001** Collected: 10/03/19 13:30 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/15/19 10:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/15/19 10:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/15/19 10:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/15/19 10:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/15/19 10:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/15/19 10:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/15/19 10:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/15/19 10:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/15/19 10:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/15/19 10:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/15/19 10:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/15/19 10:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/15/19 10:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/15/19 10:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/15/19 10:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/15/19 10:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/15/19 10:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/15/19 10:46	78-87-5	M1,R1
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/15/19 10:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/15/19 10:46	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/15/19 10:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/15/19 10:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/15/19 10:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/15/19 10:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/15/19 10:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/15/19 10:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/15/19 10:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/15/19 10:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/15/19 10:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/15/19 10:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/15/19 10:46	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/15/19 10:46	107-02-8	CL,L2
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/15/19 10:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/15/19 10:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/15/19 10:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/15/19 10:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/15/19 10:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/15/19 10:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/15/19 10:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/15/19 10:46	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/15/19 10:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/15/19 10:46	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/15/19 10:46	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		10/15/19 10:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/15/19 10:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/15/19 10:46	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Sample: Reed-GW-100319 **Lab ID: 10494130001** Collected: 10/03/19 13:30 Received: 10/04/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/15/19 10:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/15/19 10:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/15/19 10:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/15/19 10:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/15/19 10:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/15/19 10:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/15/19 10:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/15/19 10:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/15/19 10:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/15/19 10:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/15/19 10:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/15/19 10:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/15/19 10:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/15/19 10:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/15/19 10:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/15/19 10:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/15/19 10:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/15/19 10:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/15/19 10:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/15/19 10:46	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/15/19 10:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/15/19 10:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/15/19 10:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/15/19 10:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/15/19 10:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/15/19 10:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/15/19 10:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/15/19 10:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/15/19 10:46	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/15/19 10:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/15/19 10:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/15/19 10:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/15/19 10:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/15/19 10:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%	75-136		1		10/15/19 10:46	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		10/15/19 10:46	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		10/15/19 10:46	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

QC Batch: 638830

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10494130001

METHOD BLANK: 3442452

Matrix: Water

Associated Lab Samples: 10494130001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/15/19 10:22	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/15/19 10:22	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/15/19 10:22	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/15/19 10:22	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/15/19 10:22	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/15/19 10:22	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/15/19 10:22	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/15/19 10:22	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/15/19 10:22	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/15/19 10:22	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/15/19 10:22	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/15/19 10:22	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/15/19 10:22	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/15/19 10:22	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/15/19 10:22	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/15/19 10:22	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/15/19 10:22	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/15/19 10:22	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/15/19 10:22	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/15/19 10:22	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/15/19 10:22	
Acetone	ug/L	<9.2	20.0	9.2	10/15/19 10:22	
Acrolein	ug/L	<3.2	10.0	3.2	10/15/19 10:22	CL
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/15/19 10:22	
Benzene	ug/L	<0.10	0.50	0.10	10/15/19 10:22	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/15/19 10:22	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/15/19 10:22	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/15/19 10:22	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/15/19 10:22	
Bromomethane	ug/L	<1.8	4.0	1.8	10/15/19 10:22	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/15/19 10:22	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/15/19 10:22	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

METHOD BLANK: 3442452

Matrix: Water

Associated Lab Samples: 10494130001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
Chloroethane	ug/L	<0.49	4.0	0.49	10/15/19 10:22	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/15/19 10:22	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/15/19 10:22	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/15/19 10:22	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/15/19 10:22	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/15/19 10:22	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/15/19 10:22	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/15/19 10:22	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/15/19 10:22	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/15/19 10:22	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/15/19 10:22	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/15/19 10:22	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/15/19 10:22	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/15/19 10:22	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/15/19 10:22	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/15/19 10:22	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/15/19 10:22	
Naphthalene	ug/L	<0.48	1.0	0.48	10/15/19 10:22	
o-Xylene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
Styrene	ug/L	<0.19	0.50	0.19	10/15/19 10:22	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/15/19 10:22	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/15/19 10:22	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/15/19 10:22	
Toluene	ug/L	<0.083	0.50	0.083	10/15/19 10:22	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/15/19 10:22	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/15/19 10:22	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/15/19 10:22	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/15/19 10:22	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/15/19 10:22	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/15/19 10:22	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/15/19 10:22	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/15/19 10:22	
1,2-Dichloroethane-d4 (S)	%	94	75-136		10/15/19 10:22	
4-Bromofluorobenzene (S)	%	94	75-125		10/15/19 10:22	
Toluene-d8 (S)	%	101	75-125		10/15/19 10:22	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494130

LABORATORY CONTROL SAMPLE: 3442453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.2	91	68-141	
1,1,1-Trichloroethane	ug/L	20	19.5	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	15.0	75	73-125	
1,1,2-Trichloroethane	ug/L	20	18.7	94	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.3	92	69-132	
1,1-Dichloroethane	ug/L	20	18.3	91	73-125	
1,1-Dichloroethene	ug/L	20	16.2	81	71-126	
1,1-Dichloropropene	ug/L	20	17.6	88	73-126	
1,2,3-Trichlorobenzene	ug/L	20	19.4	97	72-126	
1,2,3-Trichloropropane	ug/L	20	16.8	84	75-126	
1,2,4-Trichlorobenzene	ug/L	20	19.2	96	71-134	
1,2,4-Trimethylbenzene	ug/L	20	21.1	106	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	38.6	77	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	18.1	90	75-129	
1,2-Dichlorobenzene	ug/L	20	18.8	94	75-129	
1,2-Dichloroethane	ug/L	20	14.9	75	75-125	
1,2-Dichloroethene (Total)	ug/L	40	36.3	91	74-125	N2
1,2-Dichloropropane	ug/L	20	21.4	107	75-125	
1,3,5-Trimethylbenzene	ug/L	20	18.5	93	75-127	
1,3-Dichlorobenzene	ug/L	20	19.2	96	75-126	
1,3-Dichloropropane	ug/L	20	18.4	92	75-125	
1,4-Dichlorobenzene	ug/L	20	18.2	91	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	378	94	72-129	
2,2,4-Trimethylpentane	ug/L	20	17.0	85	72-128	
2,2-Dichloropropane	ug/L	20	19.1	95	65-138	
2-Butanone (MEK)	ug/L	100	97.0	97	59-144	
2-Chlorotoluene	ug/L	20	18.0	90	75-127	
2-Hexanone	ug/L	100	97.7	98	73-134	
4-Chlorotoluene	ug/L	20	19.5	98	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	80.8	81	62-141	
Acetone	ug/L	100	121	121	60-137	
Acrolein	ug/L	200	108	54	60-141	CL,L2
Acrylonitrile	ug/L	200	187	94	75-129	
Benzene	ug/L	20	18.5	92	73-125	
Bromobenzene	ug/L	20	17.9	89	73-125	
Bromochloromethane	ug/L	20	18.8	94	75-135	
Bromodichloromethane	ug/L	20	23.8	119	75-125	
Bromoform	ug/L	20	18.5	93	67-136	
Bromomethane	ug/L	20	19.1	95	30-150	SS
Carbon disulfide	ug/L	20	13.3	67	47-137	
Carbon tetrachloride	ug/L	20	19.0	95	75-125	
Chlorobenzene	ug/L	20	17.8	89	75-125	
Chloroethane	ug/L	20	15.6	78	63-136	
Chloroform	ug/L	20	19.4	97	73-128	
Chloromethane	ug/L	20	16.2	81	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.5	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	22.7	113	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

LABORATORY CONTROL SAMPLE: 3442453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	19.8	99	75-125	
Dibromomethane	ug/L	20	23.3	116	75-125	
Dichlorodifluoromethane	ug/L	20	21.9	110	63-132	
Dichlorofluoromethane	ug/L	20	18.6	93	68-127	
Diisopropyl ether	ug/L	20	17.6	88	71-131	
Ethyl-tert-butyl ether	ug/L	20	16.8	84	75-125	
Ethylbenzene	ug/L	20	18.7	93	75-125	
Hexachloro-1,3-butadiene	ug/L	20	19.9	100	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.8	99	75-125	
m&p-Xylene	ug/L	40	40.7	102	75-126	
Methyl-tert-butyl ether	ug/L	20	17.9	90	75-125	
Methylene Chloride	ug/L	20	19.2	96	70-125	
n-Butylbenzene	ug/L	20	18.9	94	75-126	
n-Propylbenzene	ug/L	20	17.7	89	73-127	
Naphthalene	ug/L	20	18.5	93	63-128	
o-Xylene	ug/L	20	19.5	98	75-128	
p-Isopropyltoluene	ug/L	20	19.6	98	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	19.5	98	75-125	
tert-Amylmethyl ether	ug/L	20	13.0	65	75-125 L2	
tert-Butyl Alcohol	ug/L	200	150	75	75-130	
tert-Butylbenzene	ug/L	20	21.1	106	75-131	
Tetrachloroethene	ug/L	20	18.3	92	74-125	
Tetrahydrofuran	ug/L	200	176	88	64-138	
Toluene	ug/L	20	17.2	86	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.8	89	68-128	
trans-1,3-Dichloropropene	ug/L	20	16.5	82	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.0	88	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	17.9	90	72-133	
Vinyl acetate	ug/L	20	17.4	87	61-129	
Vinyl chloride	ug/L	20	20.8	104	75-128	
Xylene (Total)	ug/L	60	60.2	100	75-125	
1,2-Dichloroethane-d4 (S)	%			92	75-136	
4-Bromofluorobenzene (S)	%			96	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442454 3442455

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494130001 Result	Spike Conc.	Spike Conc.	3442455 Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	19.0	20.5	95	103	75-140	8	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20.2	19.7	101	99	74-136	3	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	16.9	18.0	85	90	66-134	6	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.3	20.4	96	102	75-126	6	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3442454		3442455							
Parameter	Units	10494130001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20.4	20.0	102	100	65-146	2	30
1,1-Dichloroethane	ug/L	<0.17	20	20	18.1	17.7	90	89	68-132	2	30
1,1-Dichloroethene	ug/L	<0.16	20	20	18.0	17.4	90	87	66-139	3	30
1,1-Dichloropropene	ug/L	<0.20	20	20	19.3	18.5	96	92	67-134	4	30
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	22.3	22.2	111	111	67-129	0	30
1,2,3-Trichloropropane	ug/L	<0.26	20	20	18.9	19.2	95	96	69-128	1	30
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.2	21.6	111	108	65-140	3	30
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	22.4	23.5	112	118	71-133	5	30
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	45.5	45.5	91	91	54-138	0	30
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	19.0	19.2	95	96	68-125	1	30
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.0	21.3	100	106	74-136	6	30
1,2-Dichloroethane	ug/L	<0.22	20	20	16.7	16.9	84	84	68-125	1	30
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	36.9	35.6	92	89	71-126	4	30 N2
1,2-Dichloropropane	ug/L	<0.16	20	20	27.8	18.9	139	95	67-125	38	30 M1,R1
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20.2	21.1	101	105	68-137	4	30
1,3-Dichlorobenzene	ug/L	<0.16	20	20	20.1	21.6	101	108	75-131	7	30
1,3-Dichloropropane	ug/L	<0.070	20	20	18.5	19.1	93	96	71-125	3	30
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.2	20.3	96	102	74-126	6	30
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	427	421	107	105	68-125	1	30
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.7	18.4	103	92	54-129	12	30
2,2-Dichloropropane	ug/L	<0.17	20	20	19.8	18.7	99	93	69-139	6	30
2-Butanone (MEK)	ug/L	<0.99	100	100	84.2	88.1	84	88	54-144	5	30
2-Chlorotoluene	ug/L	<0.16	20	20	19.2	20.4	96	102	75-134	6	30
2-Hexanone	ug/L	<0.88	100	100	92.5	96.2	92	96	58-137	4	30
4-Chlorotoluene	ug/L	<0.13	20	20	20.4	21.4	102	107	72-133	5	30
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	90.1	95.0	90	95	60-129	5	30
Acetone	ug/L	<9.2	100	100	96.6	102	97	102	62-132	6	30
Acrolein	ug/L	<3.2	200	200	190	200	95	100	30-150	5	30 CL
Acrylonitrile	ug/L	<0.91	200	200	178	186	89	93	68-125	4	30
Benzene	ug/L	<0.10	20	20	18.7	18.5	93	92	68-125	1	30
Bromobenzene	ug/L	<0.21	20	20	19.3	20.1	97	100	73-126	4	30
Bromochloromethane	ug/L	<0.27	20	20	17.9	17.9	89	89	66-143	0	30
Bromodichloromethane	ug/L	<0.22	20	20	21.3	21.6	106	108	74-125	2	30
Bromoform	ug/L	<0.80	20	20	19.9	21.1	100	106	64-134	6	30
Bromomethane	ug/L	<1.8	20	20	18.2	21.7	91	108	30-150	17	30 SS
Carbon disulfide	ug/L	<0.19	20	20	15.0	13.4	75	67	43-147	11	30
Carbon tetrachloride	ug/L	<0.19	20	20	20.7	20.9	104	104	71-143	1	30
Chlorobenzene	ug/L	<0.17	20	20	18.7	19.4	93	97	75-125	4	30
Chloroethane	ug/L	<0.49	20	20	16.7	17.4	83	87	75-129	4	30
Chloroform	ug/L	<0.45	20	20	17.8	18.1	89	90	66-132	1	30
Chloromethane	ug/L	<0.48	20	20	14.0	15.2	70	76	53-137	8	30
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	18.1	18.0	90	90	67-133	1	30
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	18.8	19.5	94	97	66-125	3	30

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442454		3442455		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10494130001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.8	21.8	104	109	62-132	5	30		
Dibromomethane	ug/L	<0.16	20	20	22.9	21.2	115	106	67-125	8	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	20.9	21.0	104	105	71-142	1	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	16.5	18.1	82	91	70-131	10	30		
Diisopropyl ether	ug/L	<0.13	20	20	17.0	18.0	85	90	63-131	6	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	16.0	16.4	80	82	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	19.9	21.3	99	106	74-126	7	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.0	21.4	130	107	68-143	19	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	21.6	22.9	108	115	74-130	6	30		
m&p-Xylene	ug/L	<0.31	40	40	43.2	46.3	108	116	69-132	7	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	17.2	18.2	86	91	65-131	6	30		
Methylene Chloride	ug/L	<0.98	20	20	18.1	18.6	90	93	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.3	21.3	111	106	71-131	5	30		
n-Propylbenzene	ug/L	<0.10	20	20	19.9	20.6	99	103	67-138	3	30		
Naphthalene	ug/L	<0.48	20	20	19.9	21.2	100	106	60-130	6	30		
o-Xylene	ug/L	<0.16	20	20	20.3	21.6	102	108	69-131	6	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	22.2	22.2	111	111	72-133	0	30		
sec-Butylbenzene	ug/L	<0.15	20	20	23.9	23.8	119	119	73-134	0	30		
Styrene	ug/L	<0.19	20	20	20.1	20.9	101	105	72-125	4	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	15.0	15.4	75	77	67-125	3	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	169	189	85	95	64-137	11	30		
tert-Butylbenzene	ug/L	<0.15	20	20	24.2	24.3	121	121	70-143	1	30		
Tetrachloroethene	ug/L	<0.17	20	20	21.1	21.7	105	109	72-129	3	30		
Tetrahydrofuran	ug/L	<2.2	200	200	192	208	96	104	66-128	8	30		
Toluene	ug/L	<0.083	20	20	18.7	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	18.8	17.6	94	88	62-137	6	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	16.9	17.2	85	86	61-136	2	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.0	49.4	96	99	45-128	3	30		
Trichloroethene	ug/L	<0.15	20	20	20.6	20.0	103	100	74-132	3	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	16.8	18.1	84	91	75-139	8	30		
Vinyl acetate	ug/L	<1.1	20	20	18.2	18.9	91	95	51-135	4	30		
Vinyl chloride	ug/L	<0.092	20	20	19.7	19.7	99	99	68-146	0	30		
Xylene (Total)	ug/L	<0.31	60	60	63.5	67.9	106	113	67-137	7	30		
1,2-Dichloroethane-d4 (S)	%						97	95	75-136				
4-Bromofluorobenzene (S)	%						95	94	75-125				
Toluene-d8 (S)	%						96	97	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494130

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494130

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494130001	Reed-GW-100319	EPA 8260B	638830		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 1 Of 1	
Company: UPRR, Jacobs		Report To: Mark Ochsner, Brad Ostapkowicz		Attention: Anne Walsh (awalsh@up.com)			
Address: 1400 W. 52nd Ave. Denver, CO 80221		Copy To: Steve Demus, Jonathan Espinoza		Company: UPRR			
Email: awalsh@up.com		Copy To: David Hodson, UPRR-Sysdat@ghd.com		Address: 1400 W. 52nd Ave, Denver, CO 80221		Regulatory Agency	
Phone: Fax:		Purchase Order #: 1497-38-Rev0		Pace Quote: Contract# 9900758938		State / Location	
Requested Due Date: 24 Hr / 3 Day / <u>10 Day</u>		Project Name: Freeman, WA-Cenex Harvest Lease		Pace Project Manager: Jennifer Gross		WA / Freeman	
		Project #:		Pace Profile #: 36447 / 1			

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analyses Test	Y/N	Requested Analysis Filtered (Y/N)				
				DATE	TIME	DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other			Low Level VOCs by 8260	Hold			
1	Reed-GW-100319	WT	G	10/3	1330			-9									X	X	1470 T22 Dissolved Metals + V 2320 Alkalinity Chloride, sulfate, Nitrate 35.0 2540 TDS TOC 5310 Sulfide 4500 Methane, Ethane, Ethane Bk 135 COD 410.4 Nitrate + Nitrite 353.2 IMS for ASD requested			
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

WO#: 10494130



10494130

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	K E Se / Jacobs	10/3/19	1530	[Signature]	10-4-19	850	0.9	Y	N	Y
							1.1			
							0.6			

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples intact (Y/N)
PRINT Name of SAMPLER:	Karla Savage					
SIGNATURE of SAMPLER:	[Signature]	DATE Signed:	10/3/19			

Sample Condition Upon Receipt

Client Name:

UPRR Jacobs

Project #:

WO#: 10494130

PM: JMG Due Date: 10/18/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7821 4575 3632/3610/3621

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.9, 1.1, 0.4</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>true</u>	Cooler Temp Corrected w/temp blank: <u>0.9, 1.1, 0.6</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 10-4-19 JA
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> , Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>Shared w/ WO# 10494130</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>225458</u>

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: [Signature]

Date: 10/4/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

October 21, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

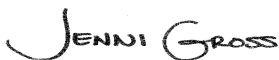
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
 A2LA Certification #: 2926.01
 Alabama Certification #: 40770
 Alaska Contaminated Sites Certification #: 17-009
 Alaska DW Certification #: MN00064
 Arizona Certification #: AZ0014
 Arkansas DW Certification #: MN00064
 Arkansas WW Certification #: 88-0680
 California Certification #: 2929
 CNMI Saipan Certification #: MP0003
 Colorado Certification #: MN00064
 Connecticut Certification #: PH-0256
 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
 Florida Certification #: E87605
 Georgia Certification #: 959
 Guam EPA Certification #: MN00064
 Hawaii Certification #: MN00064
 Idaho Certification #: MN00064
 Illinois Certification #: 200011
 Indiana Certification #: C-MN-01
 Iowa Certification #: 368
 Kansas Certification #: E-10167
 Kentucky DW Certification #: 90062
 Kentucky WW Certification #: 90062
 Louisiana DEQ Certification #: 03086
 Louisiana DW Certification #: MN00064
 Maine Certification #: MN00064
 Maryland Certification #: 322
 Massachusetts Certification #: M-MN064
 Michigan Certification #: 9909
 Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137
 Minnesota Petrofund Certification #: 1240
 Mississippi Certification #: MN00064
 Missouri Certification #: 10100
 Montana Certification #: CERT0092
 Nebraska Certification #: NE-OS-18-06
 Nevada Certification #: MN00064
 New Hampshire Certification #: 2081
 New Jersey Certification #: MN002
 New York Certification #: 11647
 North Carolina DW Certification #: 27700
 North Carolina WW Certification #: 530
 North Dakota Certification #: R-036
 Ohio DW Certification #: 41244
 Ohio VAP Certification #: CL101
 Oklahoma Certification #: 9507
 Oregon Primary Certification #: MN300001
 Oregon Secondary Certification #: MN200001
 Pennsylvania Certification #: 68-00563
 Puerto Rico Certification #: MN00064
 South Carolina Certification #:74003001
 Tennessee Certification #: TN02818
 Texas Certification #: T104704192
 Utah Certification #: MN00064
 Vermont Certification #: VT-027053137
 Virginia Certification #: 460163
 Washington Certification #: C486
 West Virginia DEP Certification #: 382
 West Virginia DW Certification #: 9952 C
 Wisconsin Certification #: 999407970
 Wyoming UST Certification #: via A2LA 2926.01

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
 Alaska Certification UST-107
 Montana Certificate #CERT0103
 Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
 Wisconsin DNR Certification #: 998027470
 WA Department of Ecology Lab ID# C1007

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
 11277CA
 Florida Department of Health (NELAC): E87595
 Illinois Environmental Protection Agency: 0025721
 Kansas Department of Health and Environment (NELAC):
 E-10266
 Louisiana Dept. of Environmental Quality (NELAC/LELAP):
 02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
 Texas Commission on Env. Quality (NELAC):
 T104704405-09-TX
 U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119
 Commonwealth of Virginia (TNI): 480246

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10494314001	MW25s-GW-100419	Water	10/04/19 10:00	10/05/19 09:10
10494314002	MW24s-GW-100419	Water	10/04/19 10:45	10/05/19 09:10
10494314003	TB-100419	Water	10/04/19 08:00	10/05/19 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
10494314001	MW25s-GW-100419	RSK 175	AH2	3	PASI-M		
		EPA 6010D	IP	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		EPA 8260B	DS2	83	PASI-M		
		SM 2320B	AR3	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		
		EPA 353.2	JFP	1	PASI-M		
		EPA 410.4	KEO	1	PASI-M		
		SM 5310C	CSD	1	PASI-V		
		10494314002	MW24s-GW-100419	RSK 175	AH2	3	PASI-M
				EPA 6010D	IP	16	PASI-M
EPA 7470A	LMW			1	PASI-M		
EPA 8260B	DS2			83	PASI-M		
SM 2320B	AR3			1	PASI-M		
SM 2540C	EPT			1	PASI-M		
SM 4500-S-2 D	PNT			1	PASI-N		
EPA 300.0	KEO			3	PASI-M		
EPA 353.2	JFP			1	PASI-M		
EPA 410.4	KEO			1	PASI-M		
SM 5310C	CSD			1	PASI-V		
10494314003	TB-100419			EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10494314001	MW25s-GW-100419					
EPA 6010D	Barium, Dissolved	34.1	ug/L	10.0	10/09/19 15:22	
EPA 6010D	Vanadium, Dissolved	1.1J	ug/L	15.0	10/09/19 15:22	
EPA 6010D	Zinc, Dissolved	7.4J	ug/L	20.0	10/09/19 15:22	
EPA 8260B	Carbon tetrachloride	127	ug/L	1.0	10/16/19 19:31	
EPA 8260B	Chloroform	47.2	ug/L	4.0	10/15/19 19:06	
SM 2320B	Alkalinity, Total as CaCO3	88.1	mg/L	5.0	10/17/19 11:10	
SM 2540C	Total Dissolved Solids	328	mg/L	10.0	10/10/19 13:40	
EPA 300.0	Chloride	33.5	mg/L	1.2	10/06/19 00:12	M1
EPA 300.0	Nitrate as N	9.2	mg/L	1.0	10/10/19 01:26	H5,M6
EPA 300.0	Sulfate	60.4	mg/L	1.2	10/06/19 00:12	M1
EPA 353.2	Nitrogen, NO2 plus NO3	10.5	mg/L	1.0	10/12/19 15:15	FS
SM 5310C	Total Organic Carbon	1.5	mg/L	1.0	10/12/19 09:31	
10494314002	MW24s-GW-100419					
EPA 6010D	Barium, Dissolved	49.0	ug/L	10.0	10/09/19 15:37	
EPA 6010D	Beryllium, Dissolved	0.17J	ug/L	5.0	10/09/19 15:37	
EPA 6010D	Chromium, Dissolved	0.84J	ug/L	10.0	10/09/19 15:37	
EPA 6010D	Cobalt, Dissolved	8.3J	ug/L	10.0	10/09/19 15:37	
EPA 6010D	Nickel, Dissolved	1.3J	ug/L	20.0	10/09/19 15:37	
EPA 6010D	Vanadium, Dissolved	9.2J	ug/L	15.0	10/09/19 15:37	
EPA 6010D	Zinc, Dissolved	12.7J	ug/L	20.0	10/09/19 15:37	
EPA 8260B	Carbon disulfide	1.4	ug/L	1.0	10/18/19 01:35	
EPA 8260B	Carbon tetrachloride	107	ug/L	2.5	10/18/19 13:18	
EPA 8260B	Chloroform	54.1	ug/L	1.0	10/18/19 01:35	
SM 2320B	Alkalinity, Total as CaCO3	118	mg/L	5.0	10/17/19 11:13	
SM 2540C	Total Dissolved Solids	264	mg/L	10.0	10/10/19 13:40	
EPA 300.0	Chloride	15.9	mg/L	1.2	10/06/19 01:17	
EPA 300.0	Nitrate as N	9.6	mg/L	1.0	10/10/19 03:20	H5
EPA 300.0	Sulfate	30.8	mg/L	1.2	10/06/19 01:17	
EPA 353.2	Nitrogen, NO2 plus NO3	10.7	mg/L	1.0	10/12/19 15:16	FS
SM 5310C	Total Organic Carbon	1.5	mg/L	1.0	10/12/19 09:44	

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: RSK 175

Description: RSK 175 GCV Headspace

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for RSK 175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- MW25s-GW-100419 (Lab ID: 10494314001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 638830

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3442453)
 - Bromomethane
- MS (Lab ID: 3442454)
 - Bromomethane
- MSD (Lab ID: 3442455)
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 638830

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 3442452)
 - Acrolein
- LCS (Lab ID: 3442453)
 - Acrolein
- MS (Lab ID: 3442454)
 - Acrolein
- MSD (Lab ID: 3442455)
 - Acrolein
- MW25s-GW-100419 (Lab ID: 10494314001)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

Method: EPA 8260B
Description: 8260B MSV Low Level
Client: UPRR_Jacobs
Date: October 21, 2019

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 638830

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494130001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3442454)
 - 1,2-Dichloropropane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3442455)
 - 1,2-Dichloropropane

QC Batch: 639197

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10496164001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3445412)
 - 1,2,3-Trichlorobenzene
 - 1,2,4-Trimethylbenzene
 - 2,2-Dichloropropane
 - Acetone
 - Benzene
 - Bromomethane
 - Toluene
 - m&p-Xylene
 - o-Xylene
- MSD (Lab ID: 3445413)
 - 1,2,3-Trichlorobenzene
 - 1,2,4-Trimethylbenzene
 - 2,2,4-Trimethylpentane
 - 2,2-Dichloropropane
 - 2-Hexanone
 - Acetone
 - Bromomethane
 - Chloromethane
 - Hexachloro-1,3-butadiene
 - Toluene
 - m&p-Xylene
 - o-Xylene

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 21, 2019

Additional Comments:

Analyte Comments:

QC Batch: 638830

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3442452)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3442453)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3442454)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3442455)
 - 1,2-Dichloroethene (Total)
- MW25s-GW-100419 (Lab ID: 10494314001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3442452)
 - Dichlorofluoromethane
- LCS (Lab ID: 3442453)
 - Dichlorofluoromethane
- MS (Lab ID: 3442454)
 - Dichlorofluoromethane
- MSD (Lab ID: 3442455)
 - Dichlorofluoromethane
- MW25s-GW-100419 (Lab ID: 10494314001)
 - Dichlorofluoromethane

QC Batch: 639197

1M: Anti-foaming agent was added to this sample.

- MS (Lab ID: 3445412)
 - 1,2-Dichloroethane-d4 (S)
- MSD (Lab ID: 3445413)
 - 1,2-Dichloroethane-d4 (S)

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3445412)
 - Benzene
 - m&p-Xylene
 - o-Xylene
 - Toluene
- MSD (Lab ID: 3445413)
 - Benzene
 - m&p-Xylene
 - o-Xylene
 - Toluene

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 21, 2019

Analyte Comments:

QC Batch: 639197

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3444292)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3444293)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3445412)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3445413)
 - 1,2-Dichloroethene (Total)
- MW24s-GW-100419 (Lab ID: 10494314002)
 - 1,2-Dichloroethene (Total)
- TB-100419 (Lab ID: 10494314003)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3444292)
 - Dichlorofluoromethane
- LCS (Lab ID: 3444293)
 - Dichlorofluoromethane
- MS (Lab ID: 3445412)
 - Dichlorofluoromethane
- MSD (Lab ID: 3445413)
 - Dichlorofluoromethane
- MW24s-GW-100419 (Lab ID: 10494314002)
 - Dichlorofluoromethane
- TB-100419 (Lab ID: 10494314003)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 638986

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494470001,10494473001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3443265)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 160342

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW24s-GW-100419 (Lab ID: 10494314002)
 - Sulfide, Total

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H5: Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

- MW24s-GW-100419 (Lab ID: 10494314002)
- MW25s-GW-100419 (Lab ID: 10494314001)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 636527

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10494314001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3430813)
 - Chloride
 - Sulfate
- MSD (Lab ID: 3430814)
 - Chloride
 - Sulfate

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3430813)
 - Nitrate as N
- MSD (Lab ID: 3430814)
 - Nitrate as N

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 21, 2019

General Information:

2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW25s-GW-100419 **Lab ID: 10494314001** Collected: 10/04/19 10:00 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 15:35	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 15:35	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 15:35	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/08/19 12:07	10/09/19 15:22	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/08/19 12:07	10/09/19 15:22	7440-38-2	
Barium, Dissolved	34.1	ug/L	10.0	0.60	1	10/08/19 12:07	10/09/19 15:22	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/08/19 12:07	10/09/19 15:22	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/08/19 12:07	10/09/19 15:22	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/08/19 12:07	10/09/19 15:22	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	10/08/19 12:07	10/09/19 15:22	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	10/08/19 12:07	10/09/19 15:22	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/08/19 12:07	10/09/19 15:22	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/08/19 12:07	10/09/19 15:22	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	10/08/19 12:07	10/09/19 15:22	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/08/19 12:07	10/09/19 15:22	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/08/19 12:07	10/09/19 15:22	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/08/19 12:07	10/09/19 15:22	7440-28-0	
Vanadium, Dissolved	1.1J	ug/L	15.0	0.43	1	10/08/19 12:07	10/09/19 15:22	7440-62-2	
Zinc, Dissolved	7.4J	ug/L	20.0	6.3	1	10/08/19 12:07	10/09/19 15:22	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/08/19 14:43	10/09/19 11:47	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		10/15/19 19:06	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/15/19 19:06	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	1.0	0.17	1		10/15/19 19:06	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		10/15/19 19:06	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		10/15/19 19:06	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/15/19 19:06	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		10/15/19 19:06	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/15/19 19:06	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/15/19 19:06	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/15/19 19:06	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		10/15/19 19:06	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/15/19 19:06	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	25.0	1.7	1		10/15/19 19:06	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/15/19 19:06	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/15/19 19:06	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		10/15/19 19:06	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/15/19 19:06	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/15/19 19:06	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/15/19 19:06	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/15/19 19:06	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW25s-GW-100419 **Lab ID: 10494314001** Collected: 10/04/19 10:00 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/15/19 19:06	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/15/19 19:06	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/15/19 19:06	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/15/19 19:06	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/15/19 19:06	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/15/19 19:06	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/15/19 19:06	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/15/19 19:06	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/15/19 19:06	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/15/19 19:06	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/15/19 19:06	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/15/19 19:06	107-02-8	CL,L2
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/15/19 19:06	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/15/19 19:06	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/15/19 19:06	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/15/19 19:06	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/15/19 19:06	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/15/19 19:06	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/15/19 19:06	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/15/19 19:06	75-15-0	
Carbon tetrachloride	127	ug/L	1.0	0.38	2		10/16/19 19:31	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		10/15/19 19:06	108-90-7	
Chloroethane	<0.49	ug/L	4.0	0.49	1		10/15/19 19:06	75-00-3	
Chloroform	47.2	ug/L	4.0	0.45	1		10/15/19 19:06	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/15/19 19:06	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/15/19 19:06	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/15/19 19:06	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/15/19 19:06	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/15/19 19:06	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/15/19 19:06	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/15/19 19:06	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/15/19 19:06	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/15/19 19:06	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		10/15/19 19:06	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/15/19 19:06	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/15/19 19:06	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/15/19 19:06	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/15/19 19:06	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/15/19 19:06	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/15/19 19:06	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/15/19 19:06	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/15/19 19:06	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/15/19 19:06	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/15/19 19:06	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/15/19 19:06	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/15/19 19:06	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW25s-GW-100419 **Lab ID: 10494314001** Collected: 10/04/19 10:00 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		10/15/19 19:06	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		10/15/19 19:06	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/15/19 19:06	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/15/19 19:06	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/15/19 19:06	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/15/19 19:06	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		10/15/19 19:06	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/15/19 19:06	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/15/19 19:06	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/15/19 19:06	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		10/15/19 19:06	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/15/19 19:06	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/15/19 19:06	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/15/19 19:06	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		10/15/19 19:06	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		10/15/19 19:06	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		10/15/19 19:06	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	88.1	mg/L	5.0	2.0	1		10/17/19 11:10		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	328	mg/L	10.0	5.0	1		10/10/19 13:40		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/09/19 15:50	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	33.5	mg/L	1.2	0.12	1		10/06/19 00:12	16887-00-6	M1
Nitrate as N	9.2	mg/L	1.0	0.12	10		10/10/19 01:26	14797-55-8	H5,M6
Sulfate	60.4	mg/L	1.2	0.28	1		10/06/19 00:12	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	10.5	mg/L	1.0	0.18	10		10/12/19 15:15		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:06		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.5	mg/L	1.0	0.39	1		10/12/19 09:31	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW24s-GW-100419 Lab ID: 10494314002 Collected: 10/04/19 10:45 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace		Analytical Method: RSK 175							
Methane	<4.9	ug/L	10.0	4.9	1		10/09/19 15:45	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/09/19 15:45	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/09/19 15:45	74-85-1	
6010D MET ICP, Dissolved		Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/08/19 12:07	10/09/19 15:37	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/08/19 12:07	10/09/19 15:37	7440-38-2	
Barium, Dissolved	49.0	ug/L	10.0	0.60	1	10/08/19 12:07	10/09/19 15:37	7440-39-3	
Beryllium, Dissolved	0.17J	ug/L	5.0	0.12	1	10/08/19 12:07	10/09/19 15:37	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/08/19 12:07	10/09/19 15:37	7440-43-9	
Chromium, Dissolved	0.84J	ug/L	10.0	0.66	1	10/08/19 12:07	10/09/19 15:37	7440-47-3	
Cobalt, Dissolved	8.3J	ug/L	10.0	0.50	1	10/08/19 12:07	10/09/19 15:37	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	10/08/19 12:07	10/09/19 15:37	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/08/19 12:07	10/09/19 15:37	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/08/19 12:07	10/09/19 15:37	7439-98-7	
Nickel, Dissolved	1.3J	ug/L	20.0	1.1	1	10/08/19 12:07	10/09/19 15:37	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/08/19 12:07	10/09/19 15:37	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/08/19 12:07	10/09/19 15:37	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/08/19 12:07	10/09/19 15:37	7440-28-0	
Vanadium, Dissolved	9.2J	ug/L	15.0	0.43	1	10/08/19 12:07	10/09/19 15:37	7440-62-2	
Zinc, Dissolved	12.7J	ug/L	20.0	6.3	1	10/08/19 12:07	10/09/19 15:37	7440-66-6	
7470A Mercury, Dissolved		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/08/19 14:43	10/09/19 11:50	7439-97-6	
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/18/19 01:35	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/18/19 01:35	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/18/19 01:35	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/18/19 01:35	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/18/19 01:35	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/18/19 01:35	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/18/19 01:35	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/18/19 01:35	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/18/19 01:35	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/18/19 01:35	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/18/19 01:35	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/18/19 01:35	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/18/19 01:35	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/18/19 01:35	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/18/19 01:35	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/18/19 01:35	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/18/19 01:35	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/18/19 01:35	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/18/19 01:35	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/18/19 01:35	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW24s-GW-100419 **Lab ID: 10494314002** Collected: 10/04/19 10:45 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/18/19 01:35	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/18/19 01:35	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/18/19 01:35	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/18/19 01:35	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/18/19 01:35	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/18/19 01:35	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/18/19 01:35	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/18/19 01:35	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/18/19 01:35	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/18/19 01:35	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/18/19 01:35	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/18/19 01:35	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/18/19 01:35	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/18/19 01:35	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/18/19 01:35	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/18/19 01:35	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/18/19 01:35	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/18/19 01:35	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/18/19 01:35	74-83-9	
Carbon disulfide	1.4	ug/L	1.0	0.19	1		10/18/19 01:35	75-15-0	
Carbon tetrachloride	107	ug/L	2.5	0.94	5		10/18/19 13:18	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/18/19 01:35	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/18/19 01:35	75-00-3	
Chloroform	54.1	ug/L	1.0	0.45	1		10/18/19 01:35	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/18/19 01:35	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/18/19 01:35	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/18/19 01:35	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/18/19 01:35	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/18/19 01:35	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/18/19 01:35	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/18/19 01:35	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/18/19 01:35	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/18/19 01:35	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/18/19 01:35	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/18/19 01:35	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/18/19 01:35	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/18/19 01:35	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/18/19 01:35	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/18/19 01:35	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/18/19 01:35	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/18/19 01:35	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/18/19 01:35	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/18/19 01:35	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/18/19 01:35	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/18/19 01:35	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/18/19 01:35	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: MW24s-GW-100419 **Lab ID: 10494314002** Collected: 10/04/19 10:45 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/18/19 01:35	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/18/19 01:35	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/18/19 01:35	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/18/19 01:35	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/18/19 01:35	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/18/19 01:35	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/18/19 01:35	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/18/19 01:35	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/18/19 01:35	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/18/19 01:35	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/18/19 01:35	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/18/19 01:35	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/18/19 01:35	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/18/19 01:35	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		10/18/19 01:35	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		10/18/19 01:35	2037-26-5	
4-Bromofluorobenzene (S)	99	%	75-125		1		10/18/19 01:35	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	118	mg/L	5.0	2.0	1		10/17/19 11:13		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	264	mg/L	10.0	5.0	1		10/10/19 13:40		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.14	mg/L	0.50	0.14	25		10/09/19 15:51	18496-25-8	D3
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	15.9	mg/L	1.2	0.12	1		10/06/19 01:17	16887-00-6	
Nitrate as N	9.6	mg/L	1.0	0.12	10		10/10/19 03:20	14797-55-8	H5
Sulfate	30.8	mg/L	1.2	0.28	1		10/06/19 01:17	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	10.7	mg/L	1.0	0.18	10		10/12/19 15:16		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/09/19 11:52	10/09/19 16:06		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.5	mg/L	1.0	0.39	1		10/12/19 09:44	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: TB-100419 **Lab ID: 10494314003** Collected: 10/04/19 08:00 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/18/19 00:48	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/18/19 00:48	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/18/19 00:48	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/18/19 00:48	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/18/19 00:48	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/18/19 00:48	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/18/19 00:48	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/18/19 00:48	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/18/19 00:48	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/18/19 00:48	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/18/19 00:48	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/18/19 00:48	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/18/19 00:48	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/18/19 00:48	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/18/19 00:48	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/18/19 00:48	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/18/19 00:48	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/18/19 00:48	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/18/19 00:48	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/18/19 00:48	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/18/19 00:48	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/18/19 00:48	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/18/19 00:48	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/18/19 00:48	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/18/19 00:48	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/18/19 00:48	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/18/19 00:48	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/18/19 00:48	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/18/19 00:48	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/18/19 00:48	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/18/19 00:48	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/18/19 00:48	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/18/19 00:48	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/18/19 00:48	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/18/19 00:48	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/18/19 00:48	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/18/19 00:48	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/18/19 00:48	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/18/19 00:48	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/18/19 00:48	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/18/19 00:48	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/18/19 00:48	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/18/19 00:48	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		10/18/19 00:48	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/18/19 00:48	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/18/19 00:48	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Sample: TB-100419 **Lab ID: 10494314003** Collected: 10/04/19 08:00 Received: 10/05/19 09:10 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/18/19 00:48	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/18/19 00:48	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/18/19 00:48	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/18/19 00:48	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/18/19 00:48	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/18/19 00:48	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/18/19 00:48	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/18/19 00:48	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/18/19 00:48	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/18/19 00:48	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/18/19 00:48	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/18/19 00:48	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/18/19 00:48	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/18/19 00:48	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/18/19 00:48	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/18/19 00:48	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/18/19 00:48	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/18/19 00:48	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/18/19 00:48	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/18/19 00:48	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/18/19 00:48	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/18/19 00:48	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/18/19 00:48	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/18/19 00:48	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/18/19 00:48	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/18/19 00:48	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/18/19 00:48	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/18/19 00:48	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/18/19 00:48	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/18/19 00:48	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/18/19 00:48	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/18/19 00:48	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/18/19 00:48	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/18/19 00:48	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		10/18/19 00:48	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		10/18/19 00:48	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		10/18/19 00:48	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 637037 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 GCV HEADSPACE
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3433436 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethane	ug/L	<3.0	10.0	3.0	10/09/19 09:53	
Ethene	ug/L	<2.9	10.0	2.9	10/09/19 09:53	
Methane	ug/L	<4.9	10.0	4.9	10/09/19 09:53	

LABORATORY CONTROL SAMPLE & LCSD: 3433437 3433438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	110	102	97	90	85-115	8	20	
Ethene	ug/L	106	103	96.9	97	91	85-115	6	20	
Methane	ug/L	60.7	56.4	56.4	93	93	85-115	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3433439 3433440

Parameter	Units	10494124003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	<3.0	114	114	114	115	100	101	30-150	1	20	
Ethene	ug/L	<2.9	106	106	106	107	100	101	30-150	1	20	
Methane	ug/L	<4.9	60.7	60.7	58.3	59.0	94	95	30-150	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3433441 3433442

Parameter	Units	10494124007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	<3.0	114	114	123	121	108	107	30-150	1	20	
Ethene	ug/L	<2.9	106	106	115	113	108	106	30-150	2	20	
Methane	ug/L	<4.9	60.7	60.7	68.3	62.8	111	102	30-150	8	20	

SAMPLE DUPLICATE: 3433444

Parameter	Units	20124505004 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	24.0	22.8	5	20	
Ethene	ug/L	ND	<2.9		20	
Methane	ug/L	950	898	6	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

QC Batch: 636841

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water Dissolved

Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3432451

Matrix: Water

Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	10/09/19 11:36	

LABORATORY CONTROL SAMPLE: 3432452

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.2	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3432453 3432454

Parameter	Units	3432453		3432454		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10493041007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Mercury, Dissolved	ug/L	ND	5	5	5.2	5.1	105	102	80-120	3	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

QC Batch: 636840

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010

Analysis Description: 6010D Water Dissolved

Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3432447

Matrix: Water

Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	10/09/19 15:11	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	10/09/19 15:11	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	10/09/19 15:11	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	10/09/19 15:11	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	10/09/19 15:11	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	10/09/19 15:11	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	10/09/19 15:11	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	10/09/19 15:11	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	10/09/19 15:11	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	10/09/19 15:11	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	10/09/19 15:11	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	10/09/19 15:11	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	10/09/19 15:11	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	10/09/19 15:11	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	10/09/19 15:11	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	10/09/19 15:11	

LABORATORY CONTROL SAMPLE: 3432448

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1010	101	80-120	
Arsenic, Dissolved	ug/L	1000	1020	102	80-120	
Barium, Dissolved	ug/L	1000	1060	106	80-120	
Beryllium, Dissolved	ug/L	1000	1010	101	80-120	
Cadmium, Dissolved	ug/L	1000	1030	103	80-120	
Chromium, Dissolved	ug/L	1000	1040	104	80-120	
Cobalt, Dissolved	ug/L	1000	1020	102	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1030	103	80-120	
Molybdenum, Dissolved	ug/L	1000	1000	100	80-120	
Nickel, Dissolved	ug/L	1000	1040	104	80-120	
Selenium, Dissolved	ug/L	1000	1020	102	80-120	
Silver, Dissolved	ug/L	500	507	101	80-120	
Thallium, Dissolved	ug/L	1000	1050	105	80-120	
Vanadium, Dissolved	ug/L	1000	1000	100	80-120	
Zinc, Dissolved	ug/L	1000	1030	103	80-120	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Units	3432449		3432450		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10494314001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1020	1000	102	100	100	75-125	2	20	
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1050	1020	105	102	102	75-125	3	20	
Barium, Dissolved	ug/L	34.1	1000	1000	1100	1090	106	106	106	75-125	1	20	
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1020	1000	102	100	100	75-125	2	20	
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1030	1010	103	101	101	75-125	2	20	
Chromium, Dissolved	ug/L	<0.66	1000	1000	1050	1030	105	103	103	75-125	2	20	
Cobalt, Dissolved	ug/L	<0.50	1000	1000	1020	1000	102	100	100	75-125	2	20	
Copper, Dissolved	ug/L	<1.2	1000	1000	1000	992	100	99	99	75-125	1	20	
Lead, Dissolved	ug/L	<2.0	1000	1000	1030	1000	102	100	100	75-125	2	20	
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1000	986	100	99	99	75-125	2	20	
Nickel, Dissolved	ug/L	<1.1	1000	1000	1030	1010	103	101	101	75-125	2	20	
Selenium, Dissolved	ug/L	<5.8	1000	1000	1020	993	102	99	99	75-125	3	20	
Silver, Dissolved	ug/L	<0.40	500	500	507	502	101	100	100	75-125	1	20	
Thallium, Dissolved	ug/L	<5.5	1000	1000	1050	1020	105	102	102	75-125	2	20	
Vanadium, Dissolved	ug/L	1.1J	1000	1000	1010	998	101	100	100	75-125	1	20	
Zinc, Dissolved	ug/L	7.4J	1000	1000	1030	1010	102	100	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 638830 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494314001

METHOD BLANK: 3442452 Matrix: Water
Associated Lab Samples: 10494314001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	10/15/19 10:22	MN
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	0.17	10/15/19 10:22	MN
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	10/15/19 10:22	MN
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	10/15/19 10:22	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	10/15/19 10:22	MN
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/15/19 10:22	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/15/19 10:22	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/15/19 10:22	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25.0	1.7	10/15/19 10:22	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/15/19 10:22	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	10/15/19 10:22	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/15/19 10:22	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/15/19 10:22	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/15/19 10:22	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/15/19 10:22	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/15/19 10:22	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/15/19 10:22	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/15/19 10:22	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/15/19 10:22	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/15/19 10:22	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/15/19 10:22	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/15/19 10:22	
Acetone	ug/L	<9.2	20.0	9.2	10/15/19 10:22	
Acrolein	ug/L	<3.2	10.0	3.2	10/15/19 10:22	CL
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/15/19 10:22	
Benzene	ug/L	<0.10	0.50	0.10	10/15/19 10:22	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/15/19 10:22	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/15/19 10:22	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/15/19 10:22	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/15/19 10:22	
Bromomethane	ug/L	<1.8	4.0	1.8	10/15/19 10:22	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/15/19 10:22	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/15/19 10:22	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

METHOD BLANK: 3442452

Matrix: Water

Associated Lab Samples: 10494314001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
Chloroethane	ug/L	<0.49	4.0	0.49	10/15/19 10:22	MN
Chloroform	ug/L	<0.45	4.0	0.45	10/15/19 10:22	MN
Chloromethane	ug/L	<0.48	4.0	0.48	10/15/19 10:22	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	10/15/19 10:22	MN
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	10/15/19 10:22	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/15/19 10:22	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/15/19 10:22	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/15/19 10:22	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/15/19 10:22	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/15/19 10:22	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/15/19 10:22	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/15/19 10:22	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/15/19 10:22	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	10/15/19 10:22	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/15/19 10:22	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/15/19 10:22	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/15/19 10:22	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/15/19 10:22	
Naphthalene	ug/L	<0.48	1.0	0.48	10/15/19 10:22	
o-Xylene	ug/L	<0.16	0.50	0.16	10/15/19 10:22	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
Styrene	ug/L	<0.19	0.50	0.19	10/15/19 10:22	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/15/19 10:22	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/15/19 10:22	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	10/15/19 10:22	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/15/19 10:22	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/15/19 10:22	
Toluene	ug/L	<0.083	0.50	0.083	10/15/19 10:22	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/15/19 10:22	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/15/19 10:22	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/15/19 10:22	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/15/19 10:22	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/15/19 10:22	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/15/19 10:22	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/15/19 10:22	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/15/19 10:22	
1,2-Dichloroethane-d4 (S)	%	94	75-136		10/15/19 10:22	
4-Bromofluorobenzene (S)	%	94	75-125		10/15/19 10:22	
Toluene-d8 (S)	%	101	75-125		10/15/19 10:22	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

LABORATORY CONTROL SAMPLE: 3442453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.2	91	68-141	
1,1,1-Trichloroethane	ug/L	20	19.5	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	15.0	75	73-125	
1,1,2-Trichloroethane	ug/L	20	18.7	94	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.3	92	69-132	
1,1-Dichloroethane	ug/L	20	18.3	91	73-125	
1,1-Dichloroethene	ug/L	20	16.2	81	71-126	
1,1-Dichloropropene	ug/L	20	17.6	88	73-126	
1,2,3-Trichlorobenzene	ug/L	20	19.4	97	72-126	
1,2,3-Trichloropropane	ug/L	20	16.8	84	75-126	
1,2,4-Trichlorobenzene	ug/L	20	19.2	96	71-134	
1,2,4-Trimethylbenzene	ug/L	20	21.1	106	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	38.6	77	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	18.1	90	75-129	
1,2-Dichlorobenzene	ug/L	20	18.8	94	75-129	
1,2-Dichloroethane	ug/L	20	14.9	75	75-125	
1,2-Dichloroethene (Total)	ug/L	40	36.3	91	74-125	N2
1,2-Dichloropropane	ug/L	20	21.4	107	75-125	
1,3,5-Trimethylbenzene	ug/L	20	18.5	93	75-127	
1,3-Dichlorobenzene	ug/L	20	19.2	96	75-126	
1,3-Dichloropropane	ug/L	20	18.4	92	75-125	
1,4-Dichlorobenzene	ug/L	20	18.2	91	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	378	94	72-129	
2,2,4-Trimethylpentane	ug/L	20	17.0	85	72-128	
2,2-Dichloropropane	ug/L	20	19.1	95	65-138	
2-Butanone (MEK)	ug/L	100	97.0	97	59-144	
2-Chlorotoluene	ug/L	20	18.0	90	75-127	
2-Hexanone	ug/L	100	97.7	98	73-134	
4-Chlorotoluene	ug/L	20	19.5	98	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	80.8	81	62-141	
Acetone	ug/L	100	121	121	60-137	
Acrolein	ug/L	200	108	54	60-141	CL,L2
Acrylonitrile	ug/L	200	187	94	75-129	
Benzene	ug/L	20	18.5	92	73-125	
Bromobenzene	ug/L	20	17.9	89	73-125	
Bromochloromethane	ug/L	20	18.8	94	75-135	
Bromodichloromethane	ug/L	20	23.8	119	75-125	
Bromoform	ug/L	20	18.5	93	67-136	
Bromomethane	ug/L	20	19.1	95	30-150	SS
Carbon disulfide	ug/L	20	13.3	67	47-137	
Carbon tetrachloride	ug/L	20	19.0	95	75-125	
Chlorobenzene	ug/L	20	17.8	89	75-125	
Chloroethane	ug/L	20	15.6	78	63-136	
Chloroform	ug/L	20	19.4	97	73-128	
Chloromethane	ug/L	20	16.2	81	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.5	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	22.7	113	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

LABORATORY CONTROL SAMPLE: 3442453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	19.8	99	75-125	
Dibromomethane	ug/L	20	23.3	116	75-125	
Dichlorodifluoromethane	ug/L	20	21.9	110	63-132	
Dichlorofluoromethane	ug/L	20	18.6	93	68-127	
Diisopropyl ether	ug/L	20	17.6	88	71-131	
Ethyl-tert-butyl ether	ug/L	20	16.8	84	75-125	
Ethylbenzene	ug/L	20	18.7	93	75-125	
Hexachloro-1,3-butadiene	ug/L	20	19.9	100	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.8	99	75-125	
m&p-Xylene	ug/L	40	40.7	102	75-126	
Methyl-tert-butyl ether	ug/L	20	17.9	90	75-125	
Methylene Chloride	ug/L	20	19.2	96	70-125	
n-Butylbenzene	ug/L	20	18.9	94	75-126	
n-Propylbenzene	ug/L	20	17.7	89	73-127	
Naphthalene	ug/L	20	18.5	93	63-128	
o-Xylene	ug/L	20	19.5	98	75-128	
p-Isopropyltoluene	ug/L	20	19.6	98	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	19.5	98	75-125	
tert-Amylmethyl ether	ug/L	20	13.0	65	75-125 L2	
tert-Butyl Alcohol	ug/L	200	150	75	75-130	
tert-Butylbenzene	ug/L	20	21.1	106	75-131	
Tetrachloroethene	ug/L	20	18.3	92	74-125	
Tetrahydrofuran	ug/L	200	176	88	64-138	
Toluene	ug/L	20	17.2	86	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.8	89	68-128	
trans-1,3-Dichloropropene	ug/L	20	16.5	82	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.0	88	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	17.9	90	72-133	
Vinyl acetate	ug/L	20	17.4	87	61-129	
Vinyl chloride	ug/L	20	20.8	104	75-128	
Xylene (Total)	ug/L	60	60.2	100	75-125	
1,2-Dichloroethane-d4 (S)	%			92	75-136	
4-Bromofluorobenzene (S)	%			96	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442454 3442455

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10494130001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	19.0	20.5	95	103	75-140	8	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	20.2	19.7	101	99	74-136	3	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	16.9	18.0	85	90	66-134	6	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	19.3	20.4	96	102	75-126	6	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442454				3442455				% Rec Limits	Max RPD	Qual
		10494130001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20.4	20.0	102	100	65-146	2	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	18.1	17.7	90	89	68-132	2	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	18.0	17.4	90	87	66-139	3	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	19.3	18.5	96	92	67-134	4	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	22.3	22.2	111	111	67-129	0	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	18.9	19.2	95	96	69-128	1	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.2	21.6	111	108	65-140	3	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	22.4	23.5	112	118	71-133	5	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	45.5	45.5	91	91	54-138	0	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	19.0	19.2	95	96	68-125	1	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20.0	21.3	100	106	74-136	6	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	16.7	16.9	84	84	68-125	1	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	36.9	35.6	92	89	71-126	4	30	N2
1,2-Dichloropropane	ug/L	<0.16	20	20	27.8	18.9	139	95	67-125	38	30	M1,R1
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20.2	21.1	101	105	68-137	4	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	20.1	21.6	101	108	75-131	7	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	18.5	19.1	93	96	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.2	20.3	96	102	74-126	6	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	427	421	107	105	68-125	1	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.7	18.4	103	92	54-129	12	30	
2,2-Dichloropropane	ug/L	<0.17	20	20	19.8	18.7	99	93	69-139	6	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	84.2	88.1	84	88	54-144	5	30	
2-Chlorotoluene	ug/L	<0.16	20	20	19.2	20.4	96	102	75-134	6	30	
2-Hexanone	ug/L	<0.88	100	100	92.5	96.2	92	96	58-137	4	30	
4-Chlorotoluene	ug/L	<0.13	20	20	20.4	21.4	102	107	72-133	5	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	90.1	95.0	90	95	60-129	5	30	
Acetone	ug/L	<9.2	100	100	96.6	102	97	102	62-132	6	30	
Acrolein	ug/L	<3.2	200	200	190	200	95	100	30-150	5	30	CL
Acrylonitrile	ug/L	<0.91	200	200	178	186	89	93	68-125	4	30	
Benzene	ug/L	<0.10	20	20	18.7	18.5	93	92	68-125	1	30	
Bromobenzene	ug/L	<0.21	20	20	19.3	20.1	97	100	73-126	4	30	
Bromochloromethane	ug/L	<0.27	20	20	17.9	17.9	89	89	66-143	0	30	
Bromodichloromethane	ug/L	<0.22	20	20	21.3	21.6	106	108	74-125	2	30	
Bromoform	ug/L	<0.80	20	20	19.9	21.1	100	106	64-134	6	30	
Bromomethane	ug/L	<1.8	20	20	18.2	21.7	91	108	30-150	17	30	SS
Carbon disulfide	ug/L	<0.19	20	20	15.0	13.4	75	67	43-147	11	30	
Carbon tetrachloride	ug/L	<0.19	20	20	20.7	20.9	104	104	71-143	1	30	
Chlorobenzene	ug/L	<0.17	20	20	18.7	19.4	93	97	75-125	4	30	
Chloroethane	ug/L	<0.49	20	20	16.7	17.4	83	87	75-129	4	30	
Chloroform	ug/L	<0.45	20	20	17.8	18.1	89	90	66-132	1	30	
Chloromethane	ug/L	<0.48	20	20	14.0	15.2	70	76	53-137	8	30	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	18.1	18.0	90	90	67-133	1	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	18.8	19.5	94	97	66-125	3	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Units	3442454		3442455		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.8	21.8	104	109	62-132	5	30		
Dibromomethane	ug/L	<0.16	20	20	22.9	21.2	115	106	67-125	8	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	20.9	21.0	104	105	71-142	1	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	16.5	18.1	82	91	70-131	10	30		
Diisopropyl ether	ug/L	<0.13	20	20	17.0	18.0	85	90	63-131	6	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	16.0	16.4	80	82	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	19.9	21.3	99	106	74-126	7	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	26.0	21.4	130	107	68-143	19	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	21.6	22.9	108	115	74-130	6	30		
m&p-Xylene	ug/L	<0.31	40	40	43.2	46.3	108	116	69-132	7	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	17.2	18.2	86	91	65-131	6	30		
Methylene Chloride	ug/L	<0.98	20	20	18.1	18.6	90	93	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.3	21.3	111	106	71-131	5	30		
n-Propylbenzene	ug/L	<0.10	20	20	19.9	20.6	99	103	67-138	3	30		
Naphthalene	ug/L	<0.48	20	20	19.9	21.2	100	106	60-130	6	30		
o-Xylene	ug/L	<0.16	20	20	20.3	21.6	102	108	69-131	6	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	22.2	22.2	111	111	72-133	0	30		
sec-Butylbenzene	ug/L	<0.15	20	20	23.9	23.8	119	119	73-134	0	30		
Styrene	ug/L	<0.19	20	20	20.1	20.9	101	105	72-125	4	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	15.0	15.4	75	77	67-125	3	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	169	189	85	95	64-137	11	30		
tert-Butylbenzene	ug/L	<0.15	20	20	24.2	24.3	121	121	70-143	1	30		
Tetrachloroethene	ug/L	<0.17	20	20	21.1	21.7	105	109	72-129	3	30		
Tetrahydrofuran	ug/L	<2.2	200	200	192	208	96	104	66-128	8	30		
Toluene	ug/L	<0.083	20	20	18.7	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	18.8	17.6	94	88	62-137	6	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	16.9	17.2	85	86	61-136	2	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.0	49.4	96	99	45-128	3	30		
Trichloroethene	ug/L	<0.15	20	20	20.6	20.0	103	100	74-132	3	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	16.8	18.1	84	91	75-139	8	30		
Vinyl acetate	ug/L	<1.1	20	20	18.2	18.9	91	95	51-135	4	30		
Vinyl chloride	ug/L	<0.092	20	20	19.7	19.7	99	99	68-146	0	30		
Xylene (Total)	ug/L	<0.31	60	60	63.5	67.9	106	113	67-137	7	30		
1,2-Dichloroethane-d4 (S)	%						97	95	75-136				
4-Bromofluorobenzene (S)	%						95	94	75-125				
Toluene-d8 (S)	%						96	97	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

QC Batch: 639197 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10494314002, 10494314003

METHOD BLANK: 3444292 Matrix: Water

Associated Lab Samples: 10494314002, 10494314003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	10/17/19 18:51	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/17/19 18:51	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	10/17/19 18:51	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	10/17/19 18:51	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	4.0	0.22	10/17/19 18:51	MN
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/17/19 18:51	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	10/17/19 18:51	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/17/19 18:51	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/17/19 18:51	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/17/19 18:51	
1,2,4-Trichlorobenzene	ug/L	<0.20	1.0	0.20	10/17/19 18:51	MN
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/17/19 18:51	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	10/17/19 18:51	MN
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/17/19 18:51	MN
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/17/19 18:51	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	10/17/19 18:51	MN
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/17/19 18:51	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/17/19 18:51	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/17/19 18:51	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/17/19 18:51	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/17/19 18:51	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/17/19 18:51	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/17/19 18:51	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/17/19 18:51	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/17/19 18:51	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/17/19 18:51	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/17/19 18:51	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/17/19 18:51	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/17/19 18:51	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/17/19 18:51	
Acetone	ug/L	<9.2	20.0	9.2	10/17/19 18:51	
Acrolein	ug/L	<3.2	10.0	3.2	10/17/19 18:51	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/17/19 18:51	
Benzene	ug/L	<0.10	0.50	0.10	10/17/19 18:51	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/17/19 18:51	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/17/19 18:51	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/17/19 18:51	MN
Bromoform	ug/L	<0.80	4.0	0.80	10/17/19 18:51	
Bromomethane	ug/L	<1.8	4.0	1.8	10/17/19 18:51	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/17/19 18:51	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/17/19 18:51	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

METHOD BLANK: 3444292

Matrix: Water

Associated Lab Samples: 10494314002, 10494314003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	1.0	0.17	10/17/19 18:51	MN
Chloroethane	ug/L	<0.49	1.0	0.49	10/17/19 18:51	
Chloroform	ug/L	<0.45	1.0	0.45	10/17/19 18:51	
Chloromethane	ug/L	<0.48	4.0	0.48	10/17/19 18:51	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	10/17/19 18:51	
cis-1,3-Dichloropropene	ug/L	<0.20	4.0	0.20	10/17/19 18:51	MN
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/17/19 18:51	MN
Dibromomethane	ug/L	<0.16	1.0	0.16	10/17/19 18:51	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/17/19 18:51	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/17/19 18:51	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/17/19 18:51	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/17/19 18:51	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/17/19 18:51	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/17/19 18:51	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	10/17/19 18:51	MN
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/17/19 18:51	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/17/19 18:51	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/17/19 18:51	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/17/19 18:51	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/17/19 18:51	
Naphthalene	ug/L	<0.48	1.0	0.48	10/17/19 18:51	
o-Xylene	ug/L	<0.16	0.50	0.16	10/17/19 18:51	
p-Isopropyltoluene	ug/L	<0.15	1.0	0.15	10/17/19 18:51	MN
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	10/17/19 18:51	MN
Styrene	ug/L	<0.19	0.50	0.19	10/17/19 18:51	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/17/19 18:51	MN
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/17/19 18:51	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	10/17/19 18:51	MN
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/17/19 18:51	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/17/19 18:51	
Toluene	ug/L	<0.083	0.50	0.083	10/17/19 18:51	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/17/19 18:51	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/17/19 18:51	MN
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/17/19 18:51	MN
Trichloroethene	ug/L	<0.15	0.40	0.15	10/17/19 18:51	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/17/19 18:51	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/17/19 18:51	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/17/19 18:51	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/17/19 18:51	
1,2-Dichloroethane-d4 (S)	%	99	75-136		10/17/19 18:51	
4-Bromofluorobenzene (S)	%	100	75-125		10/17/19 18:51	
Toluene-d8 (S)	%	101	75-125		10/17/19 18:51	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

LABORATORY CONTROL SAMPLE: 3444293

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.3	101	68-141	
1,1,1-Trichloroethane	ug/L	20	22.9	114	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	17.6	88	73-125	
1,1,2-Trichloroethane	ug/L	20	18.6	93	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.6	98	69-132	
1,1-Dichloroethane	ug/L	20	20.2	101	73-125	
1,1-Dichloroethene	ug/L	20	23.2	116	71-126	
1,1-Dichloropropene	ug/L	20	23.9	120	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.1	116	72-126	
1,2,3-Trichloropropane	ug/L	20	18.4	92	75-126	
1,2,4-Trichlorobenzene	ug/L	20	22.2	111	71-134	
1,2,4-Trimethylbenzene	ug/L	20	22.7	113	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	41.2	82	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	21.4	107	75-129	
1,2-Dichlorobenzene	ug/L	20	20.6	103	75-129	
1,2-Dichloroethane	ug/L	20	19.5	98	75-125	
1,2-Dichloroethene (Total)	ug/L	40	47.1	118	74-125	N2
1,2-Dichloropropane	ug/L	20	18.8	94	75-125	
1,3,5-Trimethylbenzene	ug/L	20	22.6	113	75-127	
1,3-Dichlorobenzene	ug/L	20	21.1	105	75-126	
1,3-Dichloropropane	ug/L	20	19.4	97	75-125	
1,4-Dichlorobenzene	ug/L	20	19.4	97	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	383	96	72-129	
2,2,4-Trimethylpentane	ug/L	20	21.2	106	72-128	
2,2-Dichloropropane	ug/L	20	23.6	118	65-138	
2-Butanone (MEK)	ug/L	100	90.1	90	59-144	
2-Chlorotoluene	ug/L	20	21.2	106	75-127	
2-Hexanone	ug/L	100	96.7	97	73-134	
4-Chlorotoluene	ug/L	20	21.1	105	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	87.8	88	62-141	
Acetone	ug/L	100	103	103	60-137	
Acrolein	ug/L	200	120	60	60-141	
Acrylonitrile	ug/L	200	199	99	75-129	
Benzene	ug/L	20	20.9	104	73-125	
Bromobenzene	ug/L	20	19.0	95	73-125	
Bromochloromethane	ug/L	20	20.9	105	75-135	
Bromodichloromethane	ug/L	20	20.3	102	75-125	
Bromoform	ug/L	20	18.1	90	67-136	
Bromomethane	ug/L	20	26.6	133	30-150	
Carbon disulfide	ug/L	20	25.1	126	47-137	
Carbon tetrachloride	ug/L	20	22.4	112	75-125	
Chlorobenzene	ug/L	20	20.6	103	75-125	
Chloroethane	ug/L	20	18.8	94	63-136	
Chloroform	ug/L	20	19.2	96	73-128	
Chloromethane	ug/L	20	18.5	93	55-130	
cis-1,2-Dichloroethene	ug/L	20	24.3	122	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

LABORATORY CONTROL SAMPLE: 3444293

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.5	107	75-125	
Dibromomethane	ug/L	20	21.3	107	75-125	
Dichlorodifluoromethane	ug/L	20	20.9	105	63-132	
Dichlorofluoromethane	ug/L	20	19.4	97	68-127	
Diisopropyl ether	ug/L	20	18.7	93	71-131	
Ethyl-tert-butyl ether	ug/L	20	19.1	95	75-125	
Ethylbenzene	ug/L	20	20.8	104	75-125	
Hexachloro-1,3-butadiene	ug/L	20	22.8	114	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.9	109	75-125	
m&p-Xylene	ug/L	40	43.7	109	75-126	
Methyl-tert-butyl ether	ug/L	20	19.0	95	75-125	
Methylene Chloride	ug/L	20	20.8	104	70-125	
n-Butylbenzene	ug/L	20	23.1	116	75-126	
n-Propylbenzene	ug/L	20	21.5	107	73-127	
Naphthalene	ug/L	20	20.8	104	63-128	
o-Xylene	ug/L	20	21.8	109	75-128	
p-Isopropyltoluene	ug/L	20	23.0	115	75-125	
sec-Butylbenzene	ug/L	20	22.3	112	75-126	
Styrene	ug/L	20	22.1	110	75-125	
tert-Amylmethyl ether	ug/L	20	19.2	96	75-125	
tert-Butyl Alcohol	ug/L	200	196	98	75-130	
tert-Butylbenzene	ug/L	20	22.1	110	75-131	
Tetrachloroethene	ug/L	20	24.1	120	74-125	
Tetrahydrofuran	ug/L	200	206	103	64-138	
Toluene	ug/L	20	20.5	102	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.8	114	68-128	
trans-1,3-Dichloropropene	ug/L	20	18.6	93	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	42.8	86	60-127	
Trichloroethene	ug/L	20	21.4	107	75-127	
Trichlorofluoromethane	ug/L	20	21.9	109	72-133	
Vinyl acetate	ug/L	20	20.9	105	61-129	
Vinyl chloride	ug/L	20	18.9	94	75-128	
Xylene (Total)	ug/L	60	65.5	109	75-125	
1,2-Dichloroethane-d4 (S)	%			104	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3445412 3445413

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496164001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	ND	500	500	563	560	113	112	75-140	0	30		
1,1,1-Trichloroethane	ug/L	ND	500	500	604	607	121	121	74-136	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	500	500	506	549	101	110	66-134	8	30		
1,1,2-Trichloroethane	ug/L	ND	500	500	514	514	103	103	75-126	0	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Units	10496164001		MS		MSD		3445412		3445413		Max RPD	Qual
		Result	Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD			
1,1,2-Trichlorotrifluoroethane	ug/L	ND	500	500	566	539	113	108	65-146	5	30		
1,1-Dichloroethane	ug/L	ND	500	500	556	531	111	106	68-132	5	30		
1,1-Dichloroethene	ug/L	ND	500	500	569	549	114	110	66-139	4	30		
1,1-Dichloropropene	ug/L	ND	500	500	622	621	124	124	67-134	0	30		
1,2,3-Trichlorobenzene	ug/L	ND	500	500	680	685	136	137	67-129	1	30	M1	
1,2,3-Trichloropropane	ug/L	ND	500	500	477	511	95	102	69-128	7	30		
1,2,4-Trichlorobenzene	ug/L	ND	500	500	684	674	137	135	65-140	2	30		
1,2,4-Trimethylbenzene	ug/L	822	500	500	1140	1130	65	62	71-133	1	30	M1	
1,2-Dibromo-3-chloropropane	ug/L	ND	1250	1250	1210	1290	97	103	54-138	7	30		
1,2-Dibromoethane (EDB)	ug/L	ND	500	500	551	557	110	111	68-125	1	30		
1,2-Dichlorobenzene	ug/L	ND	500	500	554	530	111	106	74-136	4	30		
1,2-Dichloroethane	ug/L	ND	500	500	494	482	99	96	68-125	2	30		
1,2-Dichloroethene (Total)	ug/L	ND	1000	1000	1140	1120	114	112	71-126	2	30	N2	
1,2-Dichloropropane	ug/L	ND	500	500	511	527	102	105	67-125	3	30		
1,3,5-Trimethylbenzene	ug/L	276	500	500	777	754	100	96	68-137	3	30		
1,3-Dichlorobenzene	ug/L	ND	500	500	559	547	112	109	75-131	2	30		
1,3-Dichloropropane	ug/L	ND	500	500	475	485	95	97	71-125	2	30		
1,4-Dichlorobenzene	ug/L	ND	500	500	516	509	103	102	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	ND	10000	10000	10100	10100	101	101	68-125	0	30		
2,2,4-Trimethylpentane	ug/L	ND	500	500	632	685	126	137	54-129	8	30	M1	
2,2-Dichloropropane	ug/L	ND	500	500	703	708	141	142	69-139	1	30	M1	
2-Butanone (MEK)	ug/L	2970	2500	2500	6180	6170	128	128	54-144	0	30		
2-Chlorotoluene	ug/L	ND	500	500	646	645	129	129	75-134	0	30		
2-Hexanone	ug/L	ND	2500	2500	3330	3530	133	141	58-137	6	30	M1	
4-Chlorotoluene	ug/L	ND	500	500	591	579	118	116	72-133	2	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	2500	2500	2660	2880	106	115	60-129	8	30		
Acetone	ug/L	ND	2500	2500	18700	19300	749	771	62-132	3	30	M1	
Acrolein	ug/L	ND	5000	5000	4640	5010	93	100	30-150	8	30		
Acrylonitrile	ug/L	ND	5000	5000	6170	6030	123	121	68-125	2	30		
Benzene	ug/L	8370	500	500	9210	8910	168	109	68-125	3	30	E,M1	
Bromobenzene	ug/L	ND	500	500	499	497	100	99	73-126	0	30		
Bromochloromethane	ug/L	ND	500	500	512	508	102	102	66-143	1	30		
Bromodichloromethane	ug/L	ND	500	500	542	571	108	114	74-125	5	30		
Bromoform	ug/L	ND	500	500	489	495	98	99	64-134	1	30		
Bromomethane	ug/L	ND	500	500	779	762	156	152	30-150	2	30	M1	
Carbon disulfide	ug/L	ND	500	500	395	377	79	75	43-147	5	30		
Carbon tetrachloride	ug/L	ND	500	500	624	600	125	120	71-143	4	30		
Chlorobenzene	ug/L	ND	500	500	531	525	106	105	75-125	1	30		
Chloroethane	ug/L	ND	500	500	622	607	124	121	75-129	3	30		
Chloroform	ug/L	ND	500	500	523	510	105	102	66-132	2	30		
Chloromethane	ug/L	ND	500	500	596	696	119	139	53-137	15	30	M1	
cis-1,2-Dichloroethene	ug/L	ND	500	500	611	597	122	119	67-133	2	30		
cis-1,3-Dichloropropene	ug/L	ND	500	500	502	504	100	101	66-125	0	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Units	3445412		3445413		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496164001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	ND	500	500	551	563	110	113	62-132	2	30		
Dibromomethane	ug/L	ND	500	500	510	442	102	88	67-125	14	30		
Dichlorodifluoromethane	ug/L	ND	500	500	696	688	139	138	71-142	1	30		
Dichlorofluoromethane	ug/L	ND	500	500	618	585	124	117	70-131	6	30		
Diisopropyl ether	ug/L	ND	500	500	516	525	103	105	63-131	2	30		
Ethyl-tert-butyl ether	ug/L	ND	500	500	538	545	108	109	66-128	1	30		
Ethylbenzene	ug/L	1100	500	500	1500	1520	80	85	74-126	1	30		
Hexachloro-1,3-butadiene	ug/L	ND	500	500	690	757	138	151	68-143	9	30	M1	
Isopropylbenzene (Cumene)	ug/L	134	500	500	701	688	113	111	74-130	2	30		
m&p-Xylene	ug/L	2940	1000	1000	3340	3330	41	40	69-132	0	30	E,M1	
Methyl-tert-butyl ether	ug/L	ND	500	500	513	544	103	109	65-131	6	30		
Methylene Chloride	ug/L	ND	500	500	532	521	106	104	57-125	2	30		
n-Butylbenzene	ug/L	102	500	500	740	733	128	126	71-131	1	30		
n-Propylbenzene	ug/L	199	500	500	719	714	104	103	67-138	1	30		
Naphthalene	ug/L	206	500	500	796	799	118	119	60-130	0	30		
o-Xylene	ug/L	1340	500	500	1580	1580	47	47	69-131	0	30	E,M1	
p-Isopropyltoluene	ug/L	64.1	500	500	707	706	129	128	72-133	0	30		
sec-Butylbenzene	ug/L	52.2	500	500	652	637	120	117	73-134	2	30		
Styrene	ug/L	ND	500	500	589	573	118	115	72-125	3	30		
tert-Amylmethyl ether	ug/L	ND	500	500	526	533	105	107	67-125	1	30		
tert-Butyl Alcohol	ug/L	411	5000	5000	5170	6350	95	119	64-137	20	30		
tert-Butylbenzene	ug/L	ND	500	500	624	631	125	126	70-143	1	30		
Tetrachloroethene	ug/L	ND	500	500	610	577	122	115	72-129	6	30		
Tetrahydrofuran	ug/L	ND	5000	5000	4650	4810	93	96	66-128	3	30		
Toluene	ug/L	10900	500	500	10600	10800	-63	-6	73-125	3	30	E,M1	
trans-1,2-Dichloroethene	ug/L	ND	500	500	534	526	107	105	62-137	1	30		
trans-1,3-Dichloropropene	ug/L	ND	500	500	491	494	98	99	61-136	1	30		
trans-1,4-Dichloro-2-butene	ug/L	ND	1250	1250	1500	1570	120	126	45-128	5	30		
Trichloroethene	ug/L	ND	500	500	591	561	118	112	74-132	5	30		
Trichlorofluoromethane	ug/L	ND	500	500	673	658	135	132	75-139	2	30		
Vinyl acetate	ug/L	ND	500	500	606	632	121	126	51-135	4	30		
Vinyl chloride	ug/L	ND	500	500	666	627	133	125	68-146	6	30		
Xylene (Total)	ug/L	4280	1500	1500	4920	4910	43	42	67-137	0	30	ES,MS	
1,2-Dichloroethane-d4 (S)	%						101	99	75-136			1M	
4-Bromofluorobenzene (S)	%						103	103	75-125				
Toluene-d8 (S)	%						98	99	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 638986 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3443260 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<2.0	5.0	2.0	10/17/19 10:54	

LABORATORY CONTROL SAMPLE & LCSD: 3443261 3443262

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	43.3	43.7	108	109	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443263 3443264

Parameter	Units	10494470001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	198	40	40	239	239	102	103	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443265 3443266

Parameter	Units	10494473001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	164	40	40	195	204	76	100	80-120	5	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

QC Batch: 637342

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3435120

Matrix: Water

Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	10/10/19 13:40	

LABORATORY CONTROL SAMPLE: 3435121

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	984	98	80-120	

SAMPLE DUPLICATE: 3435122

Parameter	Units	10494708001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2280	2270	1	5	

SAMPLE DUPLICATE: 3435123

Parameter	Units	10494360001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	776	777	0	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

QC Batch: 160342

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 720509

Matrix: Water

Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	10/09/19 15:43	

LABORATORY CONTROL SAMPLE: 720510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.18	92	90-110	

MATRIX SPIKE SAMPLE: 720519

Parameter	Units	10494124007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.2	0.16	80	75-125	

SAMPLE DUPLICATE: 720518

Parameter	Units	10494124007 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0054	<0.0054		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 636527 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3430811 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.41J	1.2	0.12	10/06/19 03:48	
Nitrate as N	mg/L	<0.012	0.10	0.012	10/06/19 03:48	
Sulfate	mg/L	0.52J	1.2	0.28	10/06/19 03:48	

LABORATORY CONTROL SAMPLE: 3430812

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	13.1	105	90-110	
Nitrate as N	mg/L	1	1.0	105	90-110	
Sulfate	mg/L	12.5	13.0	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3430813 3430814

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10494314001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	33.5	12.5	12.5	40.7	40.6	57	57	90-110	0	20	M1	
Nitrate as N	mg/L	9.2	10	10	19.4	19.3	103	102	90-110	1	20	M6	
Sulfate	mg/L	60.4	12.5	12.5	63.3	63.1	23	21	90-110	0	20	M1	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 637586 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3436774 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	10/12/19 13:56	FS

LABORATORY CONTROL SAMPLE: 3436775

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.96	96	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436776 3436777

Parameter	Units	10494124007		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.37	1	1	1.3	1.4	97	100	90-110	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3436778 3436779

Parameter	Units	10494303001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.70	1	1	1.7	1.7	102	96	90-110	3	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 637149 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 3434057 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	10/09/19 16:00	

LABORATORY CONTROL SAMPLE: 3434058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	301	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434059 3434060

Parameter	Units	10494124003		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chemical Oxygen Demand	mg/L	<17.0	250	250	247	246	98	98	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3434061 3434062

Parameter	Units	10494124007		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chemical Oxygen Demand	mg/L	<17.0	250	250	239	240	96	96	90-110	0	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

QC Batch: 176921 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10494314001, 10494314002

METHOD BLANK: 701129 Matrix: Water
Associated Lab Samples: 10494314001, 10494314002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	10/12/19 04:11	

LABORATORY CONTROL SAMPLE: 701130

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701131 701132

Parameter	Units	701131		701132		% Rec Limits	RPD	Max RPD	Qual		
		10494512001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	ND	25	25	26.2	26.3	103	104	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 701133 701134

Parameter	Units	701133		701134		% Rec Limits	RPD	Max RPD	Qual		
		10494223001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	2.5	25	25	27.3	27.8	99	101	80-120	2	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

1M Anti-foaming agent was added to this sample.

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

ES The reported result is estimated because one or more of the constituent results are qualified as such.

FS The sample was filtered in the laboratory prior to analysis.

H5 Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

MN The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

ANALYTE QUALIFIERS

- N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
- R1 RPD value was outside control limits.
- SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10494314

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10494314

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10494314001	MW25s-GW-100419	RSK 175	637037		
10494314002	MW24s-GW-100419	RSK 175	637037		
10494314001	MW25s-GW-100419	EPA 3010	636840	EPA 6010D	637131
10494314002	MW24s-GW-100419	EPA 3010	636840	EPA 6010D	637131
10494314001	MW25s-GW-100419	EPA 7470A	636841	EPA 7470A	637088
10494314002	MW24s-GW-100419	EPA 7470A	636841	EPA 7470A	637088
10494314001	MW25s-GW-100419	EPA 8260B	638830		
10494314002	MW24s-GW-100419	EPA 8260B	639197		
10494314003	TB-100419	EPA 8260B	639197		
10494314001	MW25s-GW-100419	SM 2320B	638986		
10494314002	MW24s-GW-100419	SM 2320B	638986		
10494314001	MW25s-GW-100419	SM 2540C	637342		
10494314002	MW24s-GW-100419	SM 2540C	637342		
10494314001	MW25s-GW-100419	SM 4500-S-2 D	160342		
10494314002	MW24s-GW-100419	SM 4500-S-2 D	160342		
10494314001	MW25s-GW-100419	EPA 300.0	636527		
10494314002	MW24s-GW-100419	EPA 300.0	636527		
10494314001	MW25s-GW-100419	EPA 353.2	637586		
10494314002	MW24s-GW-100419	EPA 353.2	637586		
10494314001	MW25s-GW-100419	EPA 410.4	637149	EPA 410.4	637302
10494314002	MW24s-GW-100419	EPA 410.4	637149	EPA 410.4	637302
10494314001	MW25s-GW-100419	SM 5310C	176921		
10494314002	MW24s-GW-100419	SM 5310C	176921		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh (awalsh@up.com)
Address: 1400 W. 52nd Ave.	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR
Denver, CO 80221	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221
Email: awalsh@up.com	Purchase Order #: 1497-38-Rev0	Pace Quote: Contract# 9900758938
Phone: Fax:	Project Name: Freeman, WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross
Requested Due Date: 24 Hr / 3 Day 10 Day	Project #:	Pace Profile #: 36447 / 1

Regulatory Agency
State / Location
WA / Freeman

ITEM #	SAMPLE ID <small>One Character per box. (A-Z, 0-9 /, -) Sample IDs must be unique</small>	MATRIX Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE <small>(see valid codes to left)</small>	SAMPLE TYPE <small>(G-GRAB, C-COMP)</small>	COLLECTED				SAMPLE TEMP. AT COLLECTION	# OF CONTAINERS	Preservatives						Y/N	Requested Analysis Filtered (Y/N)		Field Filtered!					
						DATE	TIME	DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other		Analyses Test	Low Level VOCs by 8260		Hold	Requested Analysis			
1	MW255-GW-100419			WTG		10/4	1000			13	X	X	X	X	X	X	X	X	X	X	X	X	X		001	
2	MW245-GW-100419						1045				X	X	X	X	X	X	X	X	X	X	X	X	X	X		002
3	TB-100419						800			3					X											003
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

WO#: 10494314

10494314

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>J. Li / Pacels</i>	10/4/19	1000	<i>[Signature]</i>	10/5/19	0910	0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealer (Y/N)	Cooler (Y/N)	Samples Inact. (Y/N)
PRINT Name of SAMPLER:						
SIGNATURE of SAMPLER:						
<i>Jonathan Espinoza</i>		DATE Signed: <i>10/4/19</i>				

Sample Condition Upon Receipt	Client Name: <u>UPRR Jacobs</u>	Project #: _____	WO# : 10494314
Courier:	<input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial See Exceptions		PM: JMG Due Date: 10/21/19 CLIENT: UPRR_Jacobs
Tracking Number:	<u>4C38 0199 0056</u>		

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.6</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>0.7</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: CEG 10/5/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <u>CEG 10/5/19</u> See Exception <input type="checkbox"/>
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
Exceptions: <u>(VOA) Coliform, (TOC) DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll <u>203619</u> 0-6 Strip 0-14 Strip <u>10D4281</u>
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <u>No headspace</u> See Exception <input type="checkbox"/>
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>225458</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JENNI GROSS Date: 10/07/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Chain of Custody

WO#: 12136707



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes

Owner Received Date: 10/5/2019 Results Requested By: 10/21/2019

Workorder: 10494314 Workorder Name: Freeman,WA-Cenex Harvest Lease

Report To		Subcontract To				Requested Analysis																							
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				<div style="display: flex; justify-content: space-between;"> 5632354 / 5310 TOC LAB USE ONLY </div>																							
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix													Preserved Containers											
																		HPS04											
																		DG95											
1	MW25s-GW-100419	PS	10/4/2019 10:00	10494314001	Water	2																							
2	MW24s-GW-100419	PS	10/4/2019 10:45	10494314002	Water	2																							
3																													
4																													
5																													

Transfers						Comments											
Transfers	Released By	Date/Time	Received By	Date/Time													
1	<i>[Signature]</i>	10/7/19 17:00	<i>[Signature]</i>	10/7/19 19:00													
2	<i>[Signature]</i>	10/8/19 1:00	<i>[Signature]</i>	10/8/19 06:30													
3																	

Cooler Temperature on Receipt 2.3 °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace WA Project #: _____

WO#: 12136707
 PM: RK1 Due Date: 10/21/19
 CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No **Optional:** Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 2.0 Cooler Temp Corrected °C: 2.3 Biological Tissue Frozen? Yes No NA
 Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 10/8/19 JC

Comments: Bm 10/8/19

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WJ</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Lavenna Perri

10/9/19

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

WO#: 20124776

Samples were sent directly to the Subc



Of Origin: WA

eeded: Yes No

Received Date: 10/5/2019 Results Requested By: 10/21/2019



Workorder: 10494314 Workorder Name: F

Report To						Subcontract To						Requested Analysis								
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426						Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333						5636267 / 4500 Sulfile								
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers														
						Other	BP	ZZ												
1	MW25s-GW-100419	PS	10/4/2019 10:00	10494314001	Water	1														
2	MW24s-GW-100419	PS	10/4/2019 10:45	10494314002	Water	1														
3																				
4																				
5																				

LAB USE ONLY

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	10/7/19 17:10			
2		10-8-19	<i>[Signature]</i>	10-8-19	0910
3					

Cooler Temperature on Receipt *1.6* °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Receipt **WO#: 20124776**

Project

PM: CMM

Due Date: 10/21/19

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used:	<input type="checkbox"/> Therm Fisher IR 5
	<input type="checkbox"/> Therm Fisher IR 6
	<input checked="" type="checkbox"/> Therm Fisher IR 7 #10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10-8-19

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

October 24, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

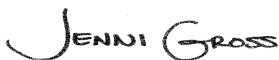
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495159

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495159

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10495159001	Marlow-GW-101019	Water	10/10/19 13:05	10/11/19 08:45
10495159002	Marlow2-GW-101019	Water	10/10/19 13:30	10/11/19 08:45

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10495159001	Marlow-GW-101019	EPA 8260B	DS2	83	PASI-M
10495159002	Marlow2-GW-101019	EPA 8260B	DS2	83	PASI-M

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10495159001	Marlow-GW-101019					
EPA 8260B	Carbon tetrachloride	120	ug/L	2.5	10/22/19 19:06	
EPA 8260B	Chloroform	8.2	ug/L	1.0	10/21/19 19:24	
10495159002	Marlow2-GW-101019					
EPA 8260B	Carbon tetrachloride	9.6	ug/L	0.50	10/21/19 15:25	
EPA 8260B	Chloroform	1.4	ug/L	1.0	10/21/19 15:25	
EPA 8260B	Toluene	0.77	ug/L	0.50	10/21/19 15:25	

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 639765

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 3447115)
 - Carbon disulfide
- LCS (Lab ID: 3447116)
 - Carbon disulfide
- MS (Lab ID: 3449784)
 - Carbon disulfide
- MSD (Lab ID: 3449785)
 - Carbon disulfide
- Marlow-GW-101019 (Lab ID: 10495159001)
 - Carbon disulfide
- Marlow2-GW-101019 (Lab ID: 10495159002)
 - Carbon disulfide

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

Analyte Comments:

QC Batch: 639765

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3447115)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3447116)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3449784)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3449785)
 - 1,2-Dichloroethene (Total)
- Marlow-GW-101019 (Lab ID: 10495159001)
 - 1,2-Dichloroethene (Total)
- Marlow2-GW-101019 (Lab ID: 10495159002)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3447115)
 - Dichlorofluoromethane
- LCS (Lab ID: 3447116)
 - Dichlorofluoromethane
- MS (Lab ID: 3449784)
 - Dichlorofluoromethane
- MSD (Lab ID: 3449785)
 - Dichlorofluoromethane
- Marlow-GW-101019 (Lab ID: 10495159001)
 - Dichlorofluoromethane
- Marlow2-GW-101019 (Lab ID: 10495159002)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Sample: Marlow-GW-101019 Lab ID: 10495159001 Collected: 10/10/19 13:05 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/21/19 19:24	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/21/19 19:24	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 19:24	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/21/19 19:24	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/21/19 19:24	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 19:24	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:24	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/21/19 19:24	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 19:24	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/21/19 19:24	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/21/19 19:24	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/21/19 19:24	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/21/19 19:24	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/21/19 19:24	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 19:24	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/21/19 19:24	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/21/19 19:24	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/21/19 19:24	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/21/19 19:24	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:24	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/21/19 19:24	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/21/19 19:24	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/21/19 19:24	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/21/19 19:24	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/21/19 19:24	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/21/19 19:24	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:24	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/21/19 19:24	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/21/19 19:24	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/21/19 19:24	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/21/19 19:24	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/21/19 19:24	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/21/19 19:24	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/21/19 19:24	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 19:24	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/21/19 19:24	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/21/19 19:24	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/21/19 19:24	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/21/19 19:24	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/21/19 19:24	75-15-0	CL
Carbon tetrachloride	120	ug/L	2.5	0.94	5		10/22/19 19:06	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/21/19 19:24	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/21/19 19:24	75-00-3	
Chloroform	8.2	ug/L	1.0	0.45	1		10/21/19 19:24	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/21/19 19:24	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/21/19 19:24	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Sample: Marlow-GW-101019 **Lab ID: 10495159001** Collected: 10/10/19 13:05 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/21/19 19:24	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/21/19 19:24	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/21/19 19:24	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/21/19 19:24	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/21/19 19:24	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 19:24	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/21/19 19:24	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/21/19 19:24	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/21/19 19:24	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/21/19 19:24	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/21/19 19:24	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/21/19 19:24	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/21/19 19:24	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/21/19 19:24	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/21/19 19:24	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/21/19 19:24	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/21/19 19:24	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/21/19 19:24	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/21/19 19:24	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/21/19 19:24	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/21/19 19:24	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/21/19 19:24	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/21/19 19:24	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/21/19 19:24	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/21/19 19:24	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:24	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:24	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:24	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/21/19 19:24	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/21/19 19:24	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:24	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/21/19 19:24	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/21/19 19:24	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/21/19 19:24	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	75-136		1		10/21/19 19:24	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		10/21/19 19:24	2037-26-5	
4-Bromofluorobenzene (S)	99	%	75-125		1		10/21/19 19:24	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Sample: Marlow2-GW-101019 **Lab ID: 10495159002** Collected: 10/10/19 13:30 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/21/19 15:25	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/21/19 15:25	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 15:25	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/21/19 15:25	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/21/19 15:25	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 15:25	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:25	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/21/19 15:25	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 15:25	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/21/19 15:25	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/21/19 15:25	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/21/19 15:25	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/21/19 15:25	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/21/19 15:25	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 15:25	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/21/19 15:25	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/21/19 15:25	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/21/19 15:25	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/21/19 15:25	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:25	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/21/19 15:25	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/21/19 15:25	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/21/19 15:25	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/21/19 15:25	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/21/19 15:25	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/21/19 15:25	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:25	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/21/19 15:25	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/21/19 15:25	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/21/19 15:25	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/21/19 15:25	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/21/19 15:25	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/21/19 15:25	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/21/19 15:25	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 15:25	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/21/19 15:25	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/21/19 15:25	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/21/19 15:25	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/21/19 15:25	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/21/19 15:25	75-15-0	CL
Carbon tetrachloride	9.6	ug/L	0.50	0.19	1		10/21/19 15:25	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/21/19 15:25	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/21/19 15:25	75-00-3	
Chloroform	1.4	ug/L	1.0	0.45	1		10/21/19 15:25	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/21/19 15:25	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/21/19 15:25	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Sample: Marlow2-GW-101019 **Lab ID: 10495159002** Collected: 10/10/19 13:30 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/21/19 15:25	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/21/19 15:25	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/21/19 15:25	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/21/19 15:25	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/21/19 15:25	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 15:25	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/21/19 15:25	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/21/19 15:25	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/21/19 15:25	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/21/19 15:25	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/21/19 15:25	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/21/19 15:25	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/21/19 15:25	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/21/19 15:25	109-99-9	
Toluene	0.77	ug/L	0.50	0.083	1		10/21/19 15:25	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/21/19 15:25	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/21/19 15:25	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/21/19 15:25	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/21/19 15:25	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/21/19 15:25	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/21/19 15:25	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/21/19 15:25	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/21/19 15:25	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/21/19 15:25	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/21/19 15:25	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:25	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:25	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:25	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/21/19 15:25	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/21/19 15:25	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:25	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/21/19 15:25	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/21/19 15:25	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/21/19 15:25	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%	75-136		1		10/21/19 15:25	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		10/21/19 15:25	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		10/21/19 15:25	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

QC Batch: 639765 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10495159001, 10495159002

METHOD BLANK: 3447115 Matrix: Water

Associated Lab Samples: 10495159001, 10495159002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	4.0	0.22	10/21/19 10:39	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/21/19 10:39	
1,2,4-Trichlorobenzene	ug/L	<0.20	1.0	0.20	10/21/19 10:39	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	10/21/19 10:39	
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/21/19 10:39	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/21/19 10:39	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/21/19 10:39	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/21/19 10:39	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/21/19 10:39	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/21/19 10:39	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/21/19 10:39	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/21/19 10:39	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/21/19 10:39	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/21/19 10:39	
Acetone	ug/L	<9.2	20.0	9.2	10/21/19 10:39	
Acrolein	ug/L	<3.2	10.0	3.2	10/21/19 10:39	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/21/19 10:39	
Benzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/21/19 10:39	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
Bromoform	ug/L	<0.80	4.0	0.80	10/21/19 10:39	
Bromomethane	ug/L	<1.8	4.0	1.8	10/21/19 10:39	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/21/19 10:39	CL
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/21/19 10:39	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

METHOD BLANK: 3447115

Matrix: Water

Associated Lab Samples: 10495159001, 10495159002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
Chloroethane	ug/L	<0.49	1.0	0.49	10/21/19 10:39	
Chloroform	ug/L	<0.45	1.0	0.45	10/21/19 10:39	
Chloromethane	ug/L	<0.48	4.0	0.48	10/21/19 10:39	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	10/21/19 10:39	
cis-1,3-Dichloropropene	ug/L	<0.20	4.0	0.20	10/21/19 10:39	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/21/19 10:39	
Dibromomethane	ug/L	<0.16	1.0	0.16	10/21/19 10:39	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/21/19 10:39	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/21/19 10:39	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/21/19 10:39	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	10/21/19 10:39	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/21/19 10:39	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/21/19 10:39	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Naphthalene	ug/L	<0.48	1.0	0.48	10/21/19 10:39	
o-Xylene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
p-Isopropyltoluene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Styrene	ug/L	<0.19	0.50	0.19	10/21/19 10:39	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/21/19 10:39	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/21/19 10:39	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/21/19 10:39	
Toluene	ug/L	<0.083	0.50	0.083	10/21/19 10:39	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/21/19 10:39	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/21/19 10:39	
Trichloroethene	ug/L	<0.15	0.40	0.15	10/21/19 10:39	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/21/19 10:39	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/21/19 10:39	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/21/19 10:39	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/21/19 10:39	
1,2-Dichloroethane-d4 (S)	%	96	75-136		10/21/19 10:39	
4-Bromofluorobenzene (S)	%	100	75-125		10/21/19 10:39	
Toluene-d8 (S)	%	97	75-125		10/21/19 10:39	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	109	68-141	
1,1,1-Trichloroethane	ug/L	20	21.0	105	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	18.9	94	73-125	
1,1,2-Trichloroethane	ug/L	20	18.9	95	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.5	87	69-132	
1,1-Dichloroethane	ug/L	20	18.1	90	73-125	
1,1-Dichloroethene	ug/L	20	16.4	82	71-126	
1,1-Dichloropropene	ug/L	20	20.0	100	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.0	115	72-126	
1,2,3-Trichloropropane	ug/L	20	18.1	90	75-126	
1,2,4-Trichlorobenzene	ug/L	20	21.4	107	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.9	104	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.8	92	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	20.4	102	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	100	75-129	
1,2-Dichloroethane	ug/L	20	16.9	85	75-125	
1,2-Dichloroethene (Total)	ug/L	40	36.5	91	74-125	N2
1,2-Dichloropropane	ug/L	20	19.5	97	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.6	103	75-127	
1,3-Dichlorobenzene	ug/L	20	20.8	104	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	19.0	95	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	399	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	18.1	91	72-128	
2,2-Dichloropropane	ug/L	20	23.5	118	65-138	
2-Butanone (MEK)	ug/L	100	95.6	96	59-144	
2-Chlorotoluene	ug/L	20	20.2	101	75-127	
2-Hexanone	ug/L	100	104	104	73-134	
4-Chlorotoluene	ug/L	20	20.9	105	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	90.1	90	62-141	
Acetone	ug/L	100	137	137	60-137	
Acrolein	ug/L	200	173	87	60-141	
Acrylonitrile	ug/L	200	193	96	75-129	
Benzene	ug/L	20	17.3	87	73-125	
Bromobenzene	ug/L	20	18.5	92	73-125	
Bromochloromethane	ug/L	20	17.4	87	75-135	
Bromodichloromethane	ug/L	20	21.7	109	75-125	
Bromoform	ug/L	20	20.6	103	67-136	
Bromomethane	ug/L	20	17.6	88	30-150	
Carbon disulfide	ug/L	20	9.4	47	47-137	CL
Carbon tetrachloride	ug/L	20	21.0	105	75-125	
Chlorobenzene	ug/L	20	19.9	99	75-125	
Chloroethane	ug/L	20	21.6	108	63-136	
Chloroform	ug/L	20	17.8	89	73-128	
Chloromethane	ug/L	20	21.9	109	55-130	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.9	100	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.8	109	75-125	
Dibromomethane	ug/L	20	21.6	108	75-125	
Dichlorodifluoromethane	ug/L	20	24.7	124	63-132	
Dichlorofluoromethane	ug/L	20	19.8	99	68-127	
Diisopropyl ether	ug/L	20	17.6	88	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	89	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Hexachloro-1,3-butadiene	ug/L	20	23.0	115	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.5	108	75-125	
m&p-Xylene	ug/L	40	40.4	101	75-126	
Methyl-tert-butyl ether	ug/L	20	17.3	86	75-125	
Methylene Chloride	ug/L	20	16.5	82	70-125	
n-Butylbenzene	ug/L	20	22.1	111	75-126	
n-Propylbenzene	ug/L	20	20.7	103	73-127	
Naphthalene	ug/L	20	19.9	100	63-128	
o-Xylene	ug/L	20	20.2	101	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.6	108	75-126	
Styrene	ug/L	20	21.3	107	75-125	
tert-Amylmethyl ether	ug/L	20	17.9	89	75-125	
tert-Butyl Alcohol	ug/L	200	231	115	75-130	
tert-Butylbenzene	ug/L	20	21.5	108	75-131	
Tetrachloroethene	ug/L	20	20.6	103	74-125	
Tetrahydrofuran	ug/L	200	185	92	64-138	
Toluene	ug/L	20	18.5	92	74-125	
trans-1,2-Dichloroethene	ug/L	20	16.3	81	68-128	
trans-1,3-Dichloropropene	ug/L	20	18.3	92	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	46.5	93	60-127	
Trichloroethene	ug/L	20	20.6	103	75-127	
Trichlorofluoromethane	ug/L	20	22.6	113	72-133	
Vinyl acetate	ug/L	20	21.2	106	61-129	
Vinyl chloride	ug/L	20	21.6	108	75-128	
Xylene (Total)	ug/L	60	60.7	101	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			97	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449784 3449785

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.8	22.8	109	114	75-140	4	30		
1,1,1-Trichloroethane	ug/L	ND	20	20	23.1	22.0	116	110	74-136	5	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	20.2	87	101	66-134	15	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	18.9	20.0	95	100	75-126	5	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Parameter	Units	3449784			3449785			% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		1049666001	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	20.6	20.0	103	100	65-146	3	30			
1,1-Dichloroethane	ug/L	ND	20	20	19.7	18.3	98	92	68-132	7	30			
1,1-Dichloroethene	ug/L	ND	20	20	18.6	17.3	93	86	66-139	8	30			
1,1-Dichloropropene	ug/L	ND	20	20	21.8	21.7	109	109	67-134	0	30			
1,2,3-Trichlorobenzene	ug/L	ND	20	20	24.6	25.2	123	126	67-129	2	30			
1,2,3-Trichloropropane	ug/L	ND	20	20	16.3	19.2	82	96	69-128	16	30			
1,2,4-Trichlorobenzene	ug/L	ND	20	20	23.7	24.3	119	121	65-140	2	30			
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.1	23.8	111	119	71-133	7	30			
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	39.3	49.1	79	98	54-138	22	30			
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	19.2	20.4	96	102	68-125	6	30			
1,2-Dichlorobenzene	ug/L	ND	20	20	20.4	22.1	102	111	74-136	8	30			
1,2-Dichloroethane	ug/L	ND	20	20	17.5	17.4	88	87	68-125	1	30			
1,2-Dichloroethene (Total)	ug/L	ND	40	40	39.3	38.1	98	95	71-126	3	30	N2		
1,2-Dichloropropane	ug/L	ND	20	20	18.5	20.4	93	102	67-125	9	30			
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.0	23.2	110	116	68-137	5	30			
1,3-Dichlorobenzene	ug/L	ND	20	20	21.1	23.1	106	116	75-131	9	30			
1,3-Dichloropropane	ug/L	ND	20	20	17.8	19.8	89	99	71-125	11	30			
1,4-Dichlorobenzene	ug/L	ND	20	20	19.4	21.1	97	106	74-126	8	30			
1,4-Dioxane (p-Dioxane)	ug/L	ND	400	400	381	393	95	98	68-125	3	30			
2,2,4-Trimethylpentane	ug/L	ND	20	20	20.3	19.2	102	96	54-129	6	30			
2,2-Dichloropropane	ug/L	ND	20	20	26.6	24.3	133	122	69-139	9	30			
2-Butanone (MEK)	ug/L	ND	100	100	74.4	84.9	74	85	54-144	13	30			
2-Chlorotoluene	ug/L	ND	20	20	21.7	22.9	109	114	75-134	5	30			
2-Hexanone	ug/L	ND	100	100	85.9	105	86	105	58-137	20	30			
4-Chlorotoluene	ug/L	ND	20	20	21.6	23.2	108	116	72-133	7	30			
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	78.8	98.1	79	98	60-129	22	30			
Acetone	ug/L	ND	100	100	91.9	90.2	92	90	62-132	2	30			
Acrolein	ug/L	ND	200	200	202	216	101	108	30-150	7	30			
Acrylonitrile	ug/L	ND	200	200	190	204	95	102	68-125	7	30			
Benzene	ug/L	ND	20	20	17.7	17.7	88	89	68-125	0	30			
Bromobenzene	ug/L	ND	20	20	17.8	19.8	89	99	73-126	11	30			
Bromochloromethane	ug/L	ND	20	20	18.7	18.6	94	93	66-143	1	30			
Bromodichloromethane	ug/L	ND	20	20	21.2	22.9	106	114	74-125	8	30			
Bromoform	ug/L	ND	20	20	18.6	21.5	93	108	64-134	14	30			
Bromomethane	ug/L	ND	20	20	20.7	20.6	104	103	30-150	1	30			
Carbon disulfide	ug/L	ND	20	20	11.6	10	58	50	43-147	15	30	CL		
Carbon tetrachloride	ug/L	ND	20	20	23.1	22.9	115	114	71-143	1	30			
Chlorobenzene	ug/L	ND	20	20	20.2	20.8	101	104	75-125	3	30			
Chloroethane	ug/L	ND	20	20	24.2	20.6	117	100	75-129	16	30			
Chloroform	ug/L	ND	20	20	18.1	18.0	90	90	66-132	0	30			
Chloromethane	ug/L	ND	20	20	27.0	23.4	135	117	53-137	14	30			
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.1	107	105	67-133	2	30			
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.1	19.7	91	99	66-125	9	30			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Parameter	Units	3449784		3449785		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	ND	20	20	20.9	22.7	105	114	62-132	8	30		
Dibromomethane	ug/L	ND	20	20	20.7	22.4	104	112	67-125	8	30		
Dichlorodifluoromethane	ug/L	ND	20	20	28.2	26.1	141	130	71-142	8	30		
Dichlorofluoromethane	ug/L	ND	20	20	23.9	21.7	119	108	70-131	10	30		
Diisopropyl ether	ug/L	50.1	20	20	68.6	72.3	92	111	63-131	5	30		
Ethyl-tert-butyl ether	ug/L	ND	20	20	17.8	18.4	89	92	66-128	3	30		
Ethylbenzene	ug/L	ND	20	20	20.5	21.8	102	109	74-126	6	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	28.1	23.9	141	119	68-143	16	30		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.3	24.9	112	125	74-130	11	30		
m&p-Xylene	ug/L	ND	40	40	43.4	44.9	109	112	69-132	3	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	18.8	86	94	65-131	8	30		
Methylene Chloride	ug/L	ND	20	20	18.3	17.0	91	85	57-125	7	30		
n-Butylbenzene	ug/L	ND	20	20	24.5	24.4	122	122	71-131	0	30		
n-Propylbenzene	ug/L	ND	20	20	22.4	22.9	112	114	67-138	2	30		
Naphthalene	ug/L	ND	20	20	20.1	22.5	101	112	60-130	11	30		
o-Xylene	ug/L	ND	20	20	21.5	22.8	107	114	69-131	6	30		
p-Isopropyltoluene	ug/L	ND	20	20	23.6	24.5	118	123	72-133	4	30		
sec-Butylbenzene	ug/L	ND	20	20	24.0	24.7	120	123	73-134	3	30		
Styrene	ug/L	ND	20	20	21.4	22.9	107	114	72-125	7	30		
tert-Amylmethyl ether	ug/L	ND	20	20	17.4	18.1	87	91	67-125	4	30		
tert-Butyl Alcohol	ug/L	51.2	200	200	239	248	94	98	64-137	4	30		
tert-Butylbenzene	ug/L	ND	20	20	22.9	24.0	115	120	70-143	4	30		
Tetrachloroethene	ug/L	ND	20	20	21.6	23.9	108	119	72-129	10	30		
Tetrahydrofuran	ug/L	ND	200	200	179	198	90	99	66-128	10	30		
Toluene	ug/L	ND	20	20	18.8	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	17.8	17.0	89	85	62-137	5	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.2	18.9	91	95	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	ND	50	50	38.0	39.7	76	79	45-128	4	30		
Trichloroethene	ug/L	ND	20	20	21.9	21.4	110	107	74-132	2	30		
Trichlorofluoromethane	ug/L	ND	20	20	27.2	24.8	136	124	75-139	9	30		
Vinyl acetate	ug/L	ND	20	20	21.2	21.9	106	109	51-135	3	30		
Vinyl chloride	ug/L	ND	20	20	26.0	22.7	130	113	68-146	14	30		
Xylene (Total)	ug/L	ND	60	60	64.9	67.7	108	113	67-137	4	30		
1,2-Dichloroethane-d4 (S)	%						96	95	75-136				
4-Bromofluorobenzene (S)	%						95	100	75-125				
Toluene-d8 (S)	%						96	93	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495159

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10495159001	Marlow-GW-101019	EPA 8260B	639765		
10495159002	Marlow2-GW-101019	EPA 8260B	639765		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Jacobs
 Address: 999 W. Riverside Ave, Suite 500
 Spokane, WA 99201
 Email:
 Phone: Fax:
 Requested Due Date: 10 Day Standard

Section B

Required Project Information:

Report To: Mark Ochsner, Brad Ostapkowicz
 Copy To: Steve Demus, Jon Espinoza
 Copy To: David Hodson, UPRR-Sysdat@ghd.com
 Purchase Order # PEDD# 1497-45-Rev(0)
 Project Name: Freeman WA-Cenex Harvest Lease Site
 Project #: 1497

Section C

Invoice Information:

Attention: Anne Walsh
 Company: UPRR
 Address: 1400 W. 52nd Ave, Denver, CO 80221
 Pace Quote: Contract# 758938
 Pace Project Manager: Jennifer Gross
 Pace Profile #: 36447 / 10

Regulatory Agency
State / Location
WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test Y/N	Requested Analysis Filtered (Y/N)										MS/MSD Requested					
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	VOCs by 8260		Dry Weight	D422 Grain Size w/hydrometer - SUB	TOC 9060 - SUB													
1	Marlow-GW-101019			WT 6		10/10	1305	↓	3					X																		001	
2	Marlow Z-GW-101019			↓	↓	↓	1330	↓	↓					X																	002		
3																																	
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

WO#: 10495159



10495159

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>John C. Jacobs</i>	10/10/19	1600	<i>John C. Espinoza</i>	10/11/19	845	1.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>Jonathan Espinoza</i>				
SIGNATURE of SAMPLER:	<i>John C.</i>	DATE Signed:	<i>10/10/19</i>		

Sample Condition Upon Receipt **Client Name:** UPRR - Jacobs **Project #:** **WO# : 10495159**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9399 4853

PM: JMG **Due Date:** 10/25/19
CLIENT: UPRR_Jacobs

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: pb **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.3 °C **Average Corrected Temp**
Correction Factor: TRUE **Cooler Temp Corrected w/temp blank :** 1.3 °C **(no temp blank only):** See Exceptions
 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** ALM 10.11.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sample Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes See Exception Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Exceptions: <u>VOA</u> , Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <u>Trip Blanks shared with WO 10495165</u> See Exception <input type="checkbox"/>
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>#225258</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JENNIFER GROSS **Date:** 10/11/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

October 24, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

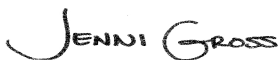
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #: 74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Montana Certificate #CERT0103
Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
Wisconsin DNR Certification #: 998027470
WA Department of Ecology Lab ID# C1007

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
11277CA
Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC):
E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP):
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC):
T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119
Commonwealth of Virginia (TNI): 480246

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10495165001	Marlow-GW-101019	Water	10/10/19 13:05	10/11/19 08:45
10495165002	Marlow2-GW-101019	Water	10/10/19 13:30	10/11/19 08:45
10495165003	Randall-GW-101019	Water	10/10/19 14:10	10/11/19 08:45
10495165004	Trip Blank	Water	10/10/19 07:00	10/11/19 08:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10495165001	Marlow-GW-101019	RSK 175	MJD	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10495165002	Marlow2-GW-101019	RSK 175	MJD	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10495165003	Randall-GW-101019	RSK 175	MJD	3	PASI-M
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	JER	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	CSD	1	PASI-V
10495165004	Trip Blank	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10495165001	Marlow-GW-101019					
EPA 6010D	Barium, Dissolved	30.4	ug/L	10.0	10/17/19 11:13	
EPA 6010D	Beryllium, Dissolved	0.21J	ug/L	5.0	10/17/19 11:13	
EPA 6010D	Cadmium, Dissolved	0.51J	ug/L	3.0	10/17/19 11:13	
EPA 6010D	Cobalt, Dissolved	0.87J	ug/L	10.0	10/17/19 11:13	B
EPA 6010D	Copper, Dissolved	380	ug/L	10.0	10/17/19 11:13	
EPA 6010D	Molybdenum, Dissolved	5.2J	ug/L	15.0	10/17/19 11:13	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	10/17/19 11:13	
EPA 6010D	Vanadium, Dissolved	8.6J	ug/L	15.0	10/17/19 11:13	
EPA 6010D	Zinc, Dissolved	1030	ug/L	20.0	10/17/19 11:13	
SM 2320B	Alkalinity, Total as CaCO3	159	mg/L	5.0	10/24/19 10:40	
SM 2540C	Total Dissolved Solids	276	mg/L	10.0	10/17/19 15:11	
EPA 300.0	Chloride	20.1	mg/L	1.2	10/12/19 09:26	M1
EPA 300.0	Nitrate as N	4.2	mg/L	0.10	10/12/19 09:26	M1
EPA 300.0	Sulfate	16.1	mg/L	1.2	10/12/19 09:26	
EPA 353.2	Nitrogen, NO2 plus NO3	4.3	mg/L	0.50	10/12/19 15:21	
SM 5310C	Total Organic Carbon	0.63J	mg/L	1.0	10/22/19 06:17	
10495165002	Marlow2-GW-101019					
EPA 6010D	Barium, Dissolved	15.2	ug/L	10.0	10/17/19 11:15	
EPA 6010D	Beryllium, Dissolved	0.16J	ug/L	5.0	10/17/19 11:15	
EPA 6010D	Cobalt, Dissolved	0.96J	ug/L	10.0	10/17/19 11:15	B
EPA 6010D	Copper, Dissolved	637	ug/L	10.0	10/17/19 11:15	
EPA 6010D	Nickel, Dissolved	1.8J	ug/L	20.0	10/17/19 11:15	
EPA 6010D	Thallium, Dissolved	5.6J	ug/L	20.0	10/17/19 11:15	
EPA 6010D	Vanadium, Dissolved	1.9J	ug/L	15.0	10/17/19 11:15	
EPA 6010D	Zinc, Dissolved	887	ug/L	20.0	10/17/19 11:15	
SM 2320B	Alkalinity, Total as CaCO3	276	mg/L	5.0	10/24/19 10:51	
SM 2540C	Total Dissolved Solids	277	mg/L	10.0	10/17/19 15:11	
EPA 300.0	Chloride	1.5	mg/L	1.2	10/12/19 10:50	B,FS
EPA 300.0	Nitrate as N	0.34	mg/L	0.10	10/12/19 10:50	FS
EPA 300.0	Sulfate	2.1	mg/L	1.2	10/12/19 10:50	B,FS
EPA 353.2	Nitrogen, NO2 plus NO3	0.33	mg/L	0.10	10/12/19 14:45	
SM 5310C	Total Organic Carbon	0.60J	mg/L	1.0	10/22/19 06:34	
10495165003	Randall-GW-101019					
EPA 6010D	Barium, Dissolved	21.5	ug/L	10.0	10/17/19 11:16	
EPA 6010D	Cobalt, Dissolved	0.62J	ug/L	10.0	10/17/19 11:16	B
EPA 6010D	Copper, Dissolved	87.5	ug/L	10.0	10/17/19 11:16	
EPA 6010D	Nickel, Dissolved	5.2J	ug/L	20.0	10/17/19 11:16	
EPA 6010D	Thallium, Dissolved	6.5J	ug/L	20.0	10/17/19 11:16	
EPA 6010D	Vanadium, Dissolved	6.5J	ug/L	15.0	10/17/19 11:16	
EPA 6010D	Zinc, Dissolved	232	ug/L	20.0	10/17/19 11:16	
SM 2320B	Alkalinity, Total as CaCO3	185	mg/L	5.0	10/24/19 11:09	
SM 2540C	Total Dissolved Solids	263	mg/L	10.0	10/17/19 15:11	
EPA 300.0	Chloride	5.2	mg/L	1.2	10/12/19 11:06	
EPA 300.0	Nitrate as N	2.2	mg/L	0.10	10/12/19 11:06	
EPA 300.0	Sulfate	10.2	mg/L	1.2	10/12/19 11:06	
EPA 353.2	Nitrogen, NO2 plus NO3	2.4	mg/L	0.50	10/16/19 10:04	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10495165003 SM 5310C	Randall-GW-101019 Total Organic Carbon	0.43J	mg/L	1.0	10/22/19 06:51	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: RSK 175

Description: RSK 175 GCV Headspace

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for RSK 175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 639000

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10495633002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3443289)
 - Ethane
 - Methane
- MSD (Lab ID: 3443290)
 - Ethane
 - Methane

R1: RPD value was outside control limits.

- MSD (Lab ID: 3443290)
 - Methane

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 637957

B: Analyte was detected in the associated method blank.

- BLANK for HBN 637957 [MPRP/976 (Lab ID: 3439284)]
- Cobalt, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 637995

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10495165001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3439445)
- Mercury, Dissolved

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 639765

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 3447115)
 - Carbon disulfide
- LCS (Lab ID: 3447116)
 - Carbon disulfide
- MS (Lab ID: 3449784)
 - Carbon disulfide
- MSD (Lab ID: 3449785)
 - Carbon disulfide
- Trip Blank (Lab ID: 10495165004)
 - Carbon disulfide

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

Analyte Comments:

QC Batch: 639765

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3447115)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3447116)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3449784)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3449785)
 - 1,2-Dichloroethene (Total)
- Trip Blank (Lab ID: 10495165004)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3447115)
 - Dichlorofluoromethane
- LCS (Lab ID: 3447116)
 - Dichlorofluoromethane
- MS (Lab ID: 3449784)
 - Dichlorofluoromethane
- MSD (Lab ID: 3449785)
 - Dichlorofluoromethane
- Trip Blank (Lab ID: 10495165004)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 640483

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10495153015,10495483001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3450273)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3450272)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 639015

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 3443324)
- Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 161370

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20125500004,20125503001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 726400)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 637878

B: Analyte was detected in the associated method blank.

- BLANK for HBN 637878 [WETA/412 (Lab ID: 3438507)
 - Chloride
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 637878

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10495165001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3438509)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3438510)
 - Chloride
 - Nitrate as N

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

Method: EPA 353.2
Description: 353.2 Nitrate + Nitrite
Client: UPRR_Jacobs
Date: October 24, 2019

General Information:

3 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 638692

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10495354001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3442021)
 - Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 638692

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3442021)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3442022)
 - Nitrogen, NO2 plus NO3

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Marlow-GW-101019 Lab ID: 10495165001 Collected: 10/10/19 13:05 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace									
Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/17/19 14:29	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/17/19 14:29	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/17/19 14:29	74-85-1	
6010D MET ICP, Dissolved									
Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 11:13	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 11:13	7440-38-2	
Barium, Dissolved	30.4	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 11:13	7440-39-3	
Beryllium, Dissolved	0.21J	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 11:13	7440-41-7	
Cadmium, Dissolved	0.51J	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 11:13	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 11:13	7440-47-3	
Cobalt, Dissolved	0.87J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 11:13	7440-48-4	B
Copper, Dissolved	380	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 11:13	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 11:13	7439-92-1	
Molybdenum, Dissolved	5.2J	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 11:13	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 11:13	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 11:13	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 11:13	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 11:13	7440-28-0	
Vanadium, Dissolved	8.6J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 11:13	7440-62-2	
Zinc, Dissolved	1030	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 11:13	7440-66-6	
7470A Mercury, Dissolved									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 17:23	7439-97-6	M1
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	159	mg/L	5.0	2.0	1		10/24/19 10:40		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Total Dissolved Solids	276	mg/L	10.0	5.0	1		10/17/19 15:11		
4500S2D Sulfide, Total									
Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/16/19 17:09	18496-25-8	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Chloride	20.1	mg/L	1.2	0.12	1		10/12/19 09:26	16887-00-6	M1
Nitrate as N	4.2	mg/L	0.10	0.012	1		10/12/19 09:26	14797-55-8	M1
Sulfate	16.1	mg/L	1.2	0.28	1		10/12/19 09:26	14808-79-8	
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	4.3	mg/L	0.50	0.088	5		10/12/19 15:21		
410.4 COD									
Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/17/19 13:38	10/17/19 16:35		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Marlow-GW-101019 **Lab ID: 10495165001** Collected: 10/10/19 13:05 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.63J	mg/L	1.0	0.39	1		10/22/19 06:17	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Marlow2-GW-101019 **Lab ID: 10495165002** Collected: 10/10/19 13:30 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/17/19 14:39	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/17/19 14:39	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/17/19 14:39	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 11:15	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 11:15	7440-38-2	
Barium, Dissolved	15.2	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 11:15	7440-39-3	
Beryllium, Dissolved	0.16J	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 11:15	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 11:15	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 11:15	7440-47-3	
Cobalt, Dissolved	0.96J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 11:15	7440-48-4	B
Copper, Dissolved	637	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 11:15	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 11:15	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 11:15	7439-98-7	
Nickel, Dissolved	1.8J	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 11:15	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 11:15	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 11:15	7440-22-4	
Thallium, Dissolved	5.6J	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 11:15	7440-28-0	
Vanadium, Dissolved	1.9J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 11:15	7440-62-2	
Zinc, Dissolved	887	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 11:15	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 17:30	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	276	mg/L	5.0	2.0	1		10/24/19 10:51		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	277	mg/L	10.0	5.0	1		10/17/19 15:11		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/16/19 17:10	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.5	mg/L	1.2	0.12	1		10/12/19 10:50	16887-00-6	B,FS
Nitrate as N	0.34	mg/L	0.10	0.012	1		10/12/19 10:50	14797-55-8	FS
Sulfate	2.1	mg/L	1.2	0.28	1		10/12/19 10:50	14808-79-8	B,FS
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.33	mg/L	0.10	0.018	1		10/12/19 14:45		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/17/19 13:38	10/17/19 16:35		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

Sample: Marlow2-GW-101019 **Lab ID: 10495165002** Collected: 10/10/19 13:30 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.60J	mg/L	1.0	0.39	1		10/22/19 06:34	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Randall-GW-101019 **Lab ID: 10495165003** Collected: 10/10/19 14:10 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 GCV Headspace Analytical Method: RSK 175									
Methane	<4.9	ug/L	10.0	4.9	1		10/17/19 14:50	74-82-8	
Ethane	<3.0	ug/L	10.0	3.0	1		10/17/19 14:50	74-84-0	
Ethene	<2.9	ug/L	10.0	2.9	1		10/17/19 14:50	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	10/16/19 02:57	10/17/19 11:16	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	10/16/19 02:57	10/17/19 11:16	7440-38-2	
Barium, Dissolved	21.5	ug/L	10.0	0.60	1	10/16/19 02:57	10/17/19 11:16	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	10/16/19 02:57	10/17/19 11:16	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	10/16/19 02:57	10/17/19 11:16	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	10/16/19 02:57	10/17/19 11:16	7440-47-3	
Cobalt, Dissolved	0.62J	ug/L	10.0	0.50	1	10/16/19 02:57	10/17/19 11:16	7440-48-4	B
Copper, Dissolved	87.5	ug/L	10.0	1.2	1	10/16/19 02:57	10/17/19 11:16	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	10/16/19 02:57	10/17/19 11:16	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	10/16/19 02:57	10/17/19 11:16	7439-98-7	
Nickel, Dissolved	5.2J	ug/L	20.0	1.1	1	10/16/19 02:57	10/17/19 11:16	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	10/16/19 02:57	10/17/19 11:16	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	10/16/19 02:57	10/17/19 11:16	7440-22-4	
Thallium, Dissolved	6.5J	ug/L	20.0	5.5	1	10/16/19 02:57	10/17/19 11:16	7440-28-0	
Vanadium, Dissolved	6.5J	ug/L	15.0	0.43	1	10/16/19 02:57	10/17/19 11:16	7440-62-2	
Zinc, Dissolved	232	ug/L	20.0	6.3	1	10/16/19 02:57	10/17/19 11:16	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	10/16/19 06:32	10/16/19 17:32	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	185	mg/L	5.0	2.0	1		10/24/19 11:09		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	263	mg/L	10.0	5.0	1		10/17/19 15:11		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0054	mg/L	0.020	0.0054	1		10/16/19 17:11	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	5.2	mg/L	1.2	0.12	1		10/12/19 11:06	16887-00-6	
Nitrate as N	2.2	mg/L	0.10	0.012	1		10/12/19 11:06	14797-55-8	
Sulfate	10.2	mg/L	1.2	0.28	1		10/12/19 11:06	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.4	mg/L	0.50	0.088	5		10/16/19 10:04		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	10/17/19 13:38	10/17/19 16:36		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Randall-GW-101019 **Lab ID: 10495165003** Collected: 10/10/19 14:10 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.43J	mg/L	1.0	0.39	1		10/22/19 06:51	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Trip Blank **Lab ID: 10495165004** Collected: 10/10/19 07:00 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/21/19 15:02	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/21/19 15:02	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 15:02	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/21/19 15:02	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/21/19 15:02	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 15:02	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:02	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/21/19 15:02	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 15:02	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/21/19 15:02	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/21/19 15:02	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/21/19 15:02	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/21/19 15:02	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/21/19 15:02	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 15:02	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/21/19 15:02	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/21/19 15:02	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/21/19 15:02	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/21/19 15:02	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:02	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/21/19 15:02	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/21/19 15:02	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/21/19 15:02	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/21/19 15:02	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/21/19 15:02	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/21/19 15:02	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:02	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/21/19 15:02	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/21/19 15:02	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/21/19 15:02	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/21/19 15:02	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/21/19 15:02	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/21/19 15:02	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/21/19 15:02	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 15:02	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/21/19 15:02	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/21/19 15:02	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/21/19 15:02	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/21/19 15:02	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		10/21/19 15:02	75-15-0	CL
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		10/21/19 15:02	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/21/19 15:02	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/21/19 15:02	75-00-3	
Chloroform	<0.45	ug/L	1.0	0.45	1		10/21/19 15:02	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/21/19 15:02	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/21/19 15:02	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Sample: Trip Blank **Lab ID: 10495165004** Collected: 10/10/19 07:00 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/21/19 15:02	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/21/19 15:02	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/21/19 15:02	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/21/19 15:02	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/21/19 15:02	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 15:02	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/21/19 15:02	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/21/19 15:02	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/21/19 15:02	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/21/19 15:02	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/21/19 15:02	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/21/19 15:02	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/21/19 15:02	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/21/19 15:02	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/21/19 15:02	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/21/19 15:02	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/21/19 15:02	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/21/19 15:02	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/21/19 15:02	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/21/19 15:02	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/21/19 15:02	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/21/19 15:02	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/21/19 15:02	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/21/19 15:02	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/21/19 15:02	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/21/19 15:02	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:02	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:02	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/21/19 15:02	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/21/19 15:02	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 15:02	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/21/19 15:02	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/21/19 15:02	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/21/19 15:02	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%	75-136		1		10/21/19 15:02	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		10/21/19 15:02	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125		1		10/21/19 15:02	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 639000 Analysis Method: RSK 175
 QC Batch Method: RSK 175 Analysis Description: RSK 175 GCV HEADSPACE
 Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3443286 Matrix: Water

Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Ethane	ug/L	<3.0	10.0	3.0	10/17/19 13:04	
Ethene	ug/L	<2.9	10.0	2.9	10/17/19 13:04	
Methane	ug/L	<4.9	10.0	4.9	10/17/19 13:04	

LABORATORY CONTROL SAMPLE & LCSD: 3443287 3443288

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	110	108	96	95	85-115	2	20	
Ethene	ug/L	106	102	101	96	95	85-115	1	20	
Methane	ug/L	60.7	55.4	55.4	91	91	85-115	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443289 3443290

Parameter	Units	10495633002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	79.4	114	114	112	113	29	29	30-150	0	20	M1
Ethene	ug/L	ND	106	106	98.4	100	91	93	30-150	2	20	
Methane	ug/L	2980	60.7	60.7	283	200	-4440	-4580	30-150	35	20	M1,R1

SAMPLE DUPLICATE: 3443978

Parameter	Units	10495069001 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	<3.0		20	
Ethene	ug/L	ND	<2.9		20	
Methane	ug/L	29.9	30.8	3	20	

SAMPLE DUPLICATE: 3443979

Parameter	Units	10495069002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	<3.0		20	
Ethene	ug/L	ND	<2.9		20	
Methane	ug/L	ND	<4.9		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 637995

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water Dissolved

Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3439442

Matrix: Water

Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	10/16/19 17:18	

LABORATORY CONTROL SAMPLE: 3439443

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.5	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439444 3439445

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10495165001 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury, Dissolved	ug/L	<0.093	5	5	5	6.0	6.1	119	123	80-120	3	20	M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 637957 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3439284 Matrix: Water

Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	10/17/19 10:43	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	10/17/19 10:43	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	10/17/19 10:43	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	10/17/19 10:43	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	10/17/19 10:43	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	10/17/19 10:43	
Cobalt, Dissolved	ug/L	0.52J	10.0	0.50	10/17/19 10:43	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	10/17/19 10:43	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	10/17/19 10:43	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	10/17/19 10:43	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	10/17/19 10:43	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	10/17/19 10:43	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	10/17/19 10:43	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	10/17/19 10:43	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	10/17/19 10:43	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	10/17/19 10:43	

LABORATORY CONTROL SAMPLE: 3439285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	960	96	80-120	
Arsenic, Dissolved	ug/L	1000	1020	102	80-120	
Barium, Dissolved	ug/L	1000	1020	102	80-120	
Beryllium, Dissolved	ug/L	1000	1030	103	80-120	
Cadmium, Dissolved	ug/L	1000	1040	104	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1020	102	80-120	
Copper, Dissolved	ug/L	1000	1000	100	80-120	
Lead, Dissolved	ug/L	1000	1020	102	80-120	
Molybdenum, Dissolved	ug/L	1000	985	98	80-120	
Nickel, Dissolved	ug/L	1000	1010	101	80-120	
Selenium, Dissolved	ug/L	1000	1040	104	80-120	
Silver, Dissolved	ug/L	500	511	102	80-120	
Thallium, Dissolved	ug/L	1000	987	99	80-120	
Vanadium, Dissolved	ug/L	1000	1020	102	80-120	
Zinc, Dissolved	ug/L	1000	1030	103	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439286												3439287	
Parameter	Units	10494124007 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony, Dissolved	ug/L	<7.0	1000	1000	1000	997	100	100	75-125	1	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1030	1040	103	104	75-125	1	20		
Barium, Dissolved	ug/L	46.2	1000	1000	1080	1100	104	105	75-125	1	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1050	1070	105	107	75-125	1	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1040	1050	104	105	75-125	1	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	1040	1050	104	105	75-125	1	20		
Cobalt, Dissolved	ug/L	1.0J	1000	1000	1020	1030	102	103	75-125	1	20		
Copper, Dissolved	ug/L	2.8J	1000	1000	1030	1040	102	104	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1030	1040	103	104	75-125	1	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1000	997	100	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1010	1020	101	102	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1060	1070	105	107	75-125	1	20		
Silver, Dissolved	ug/L	<0.40	500	500	524	529	105	106	75-125	1	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	994	1010	99	101	75-125	2	20		
Vanadium, Dissolved	ug/L	22.9	1000	1000	1060	1070	104	105	75-125	1	20		
Zinc, Dissolved	ug/L	25.1	1000	1000	1060	1070	103	104	75-125	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3439420												3439421	
Parameter	Units	10494124003 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Antimony, Dissolved	ug/L	<7.0	1000	1000	994	994	99	99	75-125	0	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1040	1040	104	104	75-125	0	20		
Barium, Dissolved	ug/L	71.1	1000	1000	1100	1100	103	103	75-125	0	20		
Beryllium, Dissolved	ug/L	0.15J	1000	1000	1060	1060	106	106	75-125	0	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1040	1030	104	103	75-125	1	20		
Chromium, Dissolved	ug/L	0.85J	1000	1000	1030	1030	103	103	75-125	0	20		
Cobalt, Dissolved	ug/L	0.62J	1000	1000	1020	1010	102	101	75-125	0	20		
Copper, Dissolved	ug/L	92.8	1000	1000	1130	1120	104	103	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1030	1020	103	102	75-125	0	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1000	993	100	99	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1010	1000	101	100	75-125	0	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	1060	105	106	75-125	1	20		
Silver, Dissolved	ug/L	<0.40	500	500	524	523	105	105	75-125	0	20		
Thallium, Dissolved	ug/L	8.7J	1000	1000	994	987	99	98	75-125	1	20		
Vanadium, Dissolved	ug/L	10.4J	1000	1000	1050	1040	104	103	75-125	0	20		
Zinc, Dissolved	ug/L	45.3	1000	1000	1070	1060	102	102	75-125	1	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 639765

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10495165004

METHOD BLANK: 3447115

Matrix: Water

Associated Lab Samples: 10495165004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	4.0	0.22	10/21/19 10:39	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/21/19 10:39	
1,2,4-Trichlorobenzene	ug/L	<0.20	1.0	0.20	10/21/19 10:39	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	10/21/19 10:39	
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/21/19 10:39	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/21/19 10:39	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/21/19 10:39	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/21/19 10:39	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/21/19 10:39	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/21/19 10:39	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/21/19 10:39	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/21/19 10:39	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/21/19 10:39	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/21/19 10:39	
Acetone	ug/L	<9.2	20.0	9.2	10/21/19 10:39	
Acrolein	ug/L	<3.2	10.0	3.2	10/21/19 10:39	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/21/19 10:39	
Benzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/21/19 10:39	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
Bromoform	ug/L	<0.80	4.0	0.80	10/21/19 10:39	
Bromomethane	ug/L	<1.8	4.0	1.8	10/21/19 10:39	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/21/19 10:39	CL
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/21/19 10:39	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

METHOD BLANK: 3447115

Matrix: Water

Associated Lab Samples: 10495165004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
Chloroethane	ug/L	<0.49	1.0	0.49	10/21/19 10:39	
Chloroform	ug/L	<0.45	1.0	0.45	10/21/19 10:39	
Chloromethane	ug/L	<0.48	4.0	0.48	10/21/19 10:39	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	10/21/19 10:39	
cis-1,3-Dichloropropene	ug/L	<0.20	4.0	0.20	10/21/19 10:39	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/21/19 10:39	
Dibromomethane	ug/L	<0.16	1.0	0.16	10/21/19 10:39	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/21/19 10:39	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/21/19 10:39	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/21/19 10:39	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	10/21/19 10:39	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/21/19 10:39	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/21/19 10:39	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Naphthalene	ug/L	<0.48	1.0	0.48	10/21/19 10:39	
o-Xylene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
p-Isopropyltoluene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Styrene	ug/L	<0.19	0.50	0.19	10/21/19 10:39	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/21/19 10:39	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/21/19 10:39	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/21/19 10:39	
Toluene	ug/L	<0.083	0.50	0.083	10/21/19 10:39	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/21/19 10:39	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/21/19 10:39	
Trichloroethene	ug/L	<0.15	0.40	0.15	10/21/19 10:39	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/21/19 10:39	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/21/19 10:39	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/21/19 10:39	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/21/19 10:39	
1,2-Dichloroethane-d4 (S)	%	96	75-136		10/21/19 10:39	
4-Bromofluorobenzene (S)	%	100	75-125		10/21/19 10:39	
Toluene-d8 (S)	%	97	75-125		10/21/19 10:39	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	109	68-141	
1,1,1-Trichloroethane	ug/L	20	21.0	105	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	18.9	94	73-125	
1,1,2-Trichloroethane	ug/L	20	18.9	95	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.5	87	69-132	
1,1-Dichloroethane	ug/L	20	18.1	90	73-125	
1,1-Dichloroethene	ug/L	20	16.4	82	71-126	
1,1-Dichloropropene	ug/L	20	20.0	100	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.0	115	72-126	
1,2,3-Trichloropropane	ug/L	20	18.1	90	75-126	
1,2,4-Trichlorobenzene	ug/L	20	21.4	107	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.9	104	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.8	92	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	20.4	102	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	100	75-129	
1,2-Dichloroethane	ug/L	20	16.9	85	75-125	
1,2-Dichloroethene (Total)	ug/L	40	36.5	91	74-125	N2
1,2-Dichloropropane	ug/L	20	19.5	97	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.6	103	75-127	
1,3-Dichlorobenzene	ug/L	20	20.8	104	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	19.0	95	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	399	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	18.1	91	72-128	
2,2-Dichloropropane	ug/L	20	23.5	118	65-138	
2-Butanone (MEK)	ug/L	100	95.6	96	59-144	
2-Chlorotoluene	ug/L	20	20.2	101	75-127	
2-Hexanone	ug/L	100	104	104	73-134	
4-Chlorotoluene	ug/L	20	20.9	105	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	90.1	90	62-141	
Acetone	ug/L	100	137	137	60-137	
Acrolein	ug/L	200	173	87	60-141	
Acrylonitrile	ug/L	200	193	96	75-129	
Benzene	ug/L	20	17.3	87	73-125	
Bromobenzene	ug/L	20	18.5	92	73-125	
Bromochloromethane	ug/L	20	17.4	87	75-135	
Bromodichloromethane	ug/L	20	21.7	109	75-125	
Bromoform	ug/L	20	20.6	103	67-136	
Bromomethane	ug/L	20	17.6	88	30-150	
Carbon disulfide	ug/L	20	9.4	47	47-137	CL
Carbon tetrachloride	ug/L	20	21.0	105	75-125	
Chlorobenzene	ug/L	20	19.9	99	75-125	
Chloroethane	ug/L	20	21.6	108	63-136	
Chloroform	ug/L	20	17.8	89	73-128	
Chloromethane	ug/L	20	21.9	109	55-130	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.9	100	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.8	109	75-125	
Dibromomethane	ug/L	20	21.6	108	75-125	
Dichlorodifluoromethane	ug/L	20	24.7	124	63-132	
Dichlorofluoromethane	ug/L	20	19.8	99	68-127	
Diisopropyl ether	ug/L	20	17.6	88	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	89	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Hexachloro-1,3-butadiene	ug/L	20	23.0	115	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.5	108	75-125	
m&p-Xylene	ug/L	40	40.4	101	75-126	
Methyl-tert-butyl ether	ug/L	20	17.3	86	75-125	
Methylene Chloride	ug/L	20	16.5	82	70-125	
n-Butylbenzene	ug/L	20	22.1	111	75-126	
n-Propylbenzene	ug/L	20	20.7	103	73-127	
Naphthalene	ug/L	20	19.9	100	63-128	
o-Xylene	ug/L	20	20.2	101	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.6	108	75-126	
Styrene	ug/L	20	21.3	107	75-125	
tert-Amylmethyl ether	ug/L	20	17.9	89	75-125	
tert-Butyl Alcohol	ug/L	200	231	115	75-130	
tert-Butylbenzene	ug/L	20	21.5	108	75-131	
Tetrachloroethene	ug/L	20	20.6	103	74-125	
Tetrahydrofuran	ug/L	200	185	92	64-138	
Toluene	ug/L	20	18.5	92	74-125	
trans-1,2-Dichloroethene	ug/L	20	16.3	81	68-128	
trans-1,3-Dichloropropene	ug/L	20	18.3	92	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	46.5	93	60-127	
Trichloroethene	ug/L	20	20.6	103	75-127	
Trichlorofluoromethane	ug/L	20	22.6	113	72-133	
Vinyl acetate	ug/L	20	21.2	106	61-129	
Vinyl chloride	ug/L	20	21.6	108	75-128	
Xylene (Total)	ug/L	60	60.7	101	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			97	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449784 3449785

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.8	22.8	109	114	75-140	4	30		
1,1,1-Trichloroethane	ug/L	ND	20	20	23.1	22.0	116	110	74-136	5	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	20.2	87	101	66-134	15	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	18.9	20.0	95	100	75-126	5	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Parameter	Units	3449784			3449785			% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		1049666001	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	20.6	20.0	103	100	65-146	3	30			
1,1-Dichloroethane	ug/L	ND	20	20	19.7	18.3	98	92	68-132	7	30			
1,1-Dichloroethene	ug/L	ND	20	20	18.6	17.3	93	86	66-139	8	30			
1,1-Dichloropropene	ug/L	ND	20	20	21.8	21.7	109	109	67-134	0	30			
1,2,3-Trichlorobenzene	ug/L	ND	20	20	24.6	25.2	123	126	67-129	2	30			
1,2,3-Trichloropropane	ug/L	ND	20	20	16.3	19.2	82	96	69-128	16	30			
1,2,4-Trichlorobenzene	ug/L	ND	20	20	23.7	24.3	119	121	65-140	2	30			
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.1	23.8	111	119	71-133	7	30			
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	39.3	49.1	79	98	54-138	22	30			
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	19.2	20.4	96	102	68-125	6	30			
1,2-Dichlorobenzene	ug/L	ND	20	20	20.4	22.1	102	111	74-136	8	30			
1,2-Dichloroethane	ug/L	ND	20	20	17.5	17.4	88	87	68-125	1	30			
1,2-Dichloroethene (Total)	ug/L	ND	40	40	39.3	38.1	98	95	71-126	3	30	N2		
1,2-Dichloropropane	ug/L	ND	20	20	18.5	20.4	93	102	67-125	9	30			
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.0	23.2	110	116	68-137	5	30			
1,3-Dichlorobenzene	ug/L	ND	20	20	21.1	23.1	106	116	75-131	9	30			
1,3-Dichloropropane	ug/L	ND	20	20	17.8	19.8	89	99	71-125	11	30			
1,4-Dichlorobenzene	ug/L	ND	20	20	19.4	21.1	97	106	74-126	8	30			
1,4-Dioxane (p-Dioxane)	ug/L	ND	400	400	381	393	95	98	68-125	3	30			
2,2,4-Trimethylpentane	ug/L	ND	20	20	20.3	19.2	102	96	54-129	6	30			
2,2-Dichloropropane	ug/L	ND	20	20	26.6	24.3	133	122	69-139	9	30			
2-Butanone (MEK)	ug/L	ND	100	100	74.4	84.9	74	85	54-144	13	30			
2-Chlorotoluene	ug/L	ND	20	20	21.7	22.9	109	114	75-134	5	30			
2-Hexanone	ug/L	ND	100	100	85.9	105	86	105	58-137	20	30			
4-Chlorotoluene	ug/L	ND	20	20	21.6	23.2	108	116	72-133	7	30			
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	78.8	98.1	79	98	60-129	22	30			
Acetone	ug/L	ND	100	100	91.9	90.2	92	90	62-132	2	30			
Acrolein	ug/L	ND	200	200	202	216	101	108	30-150	7	30			
Acrylonitrile	ug/L	ND	200	200	190	204	95	102	68-125	7	30			
Benzene	ug/L	ND	20	20	17.7	17.7	88	89	68-125	0	30			
Bromobenzene	ug/L	ND	20	20	17.8	19.8	89	99	73-126	11	30			
Bromochloromethane	ug/L	ND	20	20	18.7	18.6	94	93	66-143	1	30			
Bromodichloromethane	ug/L	ND	20	20	21.2	22.9	106	114	74-125	8	30			
Bromoform	ug/L	ND	20	20	18.6	21.5	93	108	64-134	14	30			
Bromomethane	ug/L	ND	20	20	20.7	20.6	104	103	30-150	1	30			
Carbon disulfide	ug/L	ND	20	20	11.6	10	58	50	43-147	15	30	CL		
Carbon tetrachloride	ug/L	ND	20	20	23.1	22.9	115	114	71-143	1	30			
Chlorobenzene	ug/L	ND	20	20	20.2	20.8	101	104	75-125	3	30			
Chloroethane	ug/L	ND	20	20	24.2	20.6	117	100	75-129	16	30			
Chloroform	ug/L	ND	20	20	18.1	18.0	90	90	66-132	0	30			
Chloromethane	ug/L	ND	20	20	27.0	23.4	135	117	53-137	14	30			
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.1	107	105	67-133	2	30			
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.1	19.7	91	99	66-125	9	30			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449784												3449785	
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	Spike Conc.	Spike Conc.	MS Conc.								
Dibromochloromethane	ug/L	ND	20	20	20.9	22.7	105	114	62-132	8	30		
Dibromomethane	ug/L	ND	20	20	20.7	22.4	104	112	67-125	8	30		
Dichlorodifluoromethane	ug/L	ND	20	20	28.2	26.1	141	130	71-142	8	30		
Dichlorofluoromethane	ug/L	ND	20	20	23.9	21.7	119	108	70-131	10	30		
Diisopropyl ether	ug/L	50.1	20	20	68.6	72.3	92	111	63-131	5	30		
Ethyl-tert-butyl ether	ug/L	ND	20	20	17.8	18.4	89	92	66-128	3	30		
Ethylbenzene	ug/L	ND	20	20	20.5	21.8	102	109	74-126	6	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	28.1	23.9	141	119	68-143	16	30		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.3	24.9	112	125	74-130	11	30		
m&p-Xylene	ug/L	ND	40	40	43.4	44.9	109	112	69-132	3	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	18.8	86	94	65-131	8	30		
Methylene Chloride	ug/L	ND	20	20	18.3	17.0	91	85	57-125	7	30		
n-Butylbenzene	ug/L	ND	20	20	24.5	24.4	122	122	71-131	0	30		
n-Propylbenzene	ug/L	ND	20	20	22.4	22.9	112	114	67-138	2	30		
Naphthalene	ug/L	ND	20	20	20.1	22.5	101	112	60-130	11	30		
o-Xylene	ug/L	ND	20	20	21.5	22.8	107	114	69-131	6	30		
p-Isopropyltoluene	ug/L	ND	20	20	23.6	24.5	118	123	72-133	4	30		
sec-Butylbenzene	ug/L	ND	20	20	24.0	24.7	120	123	73-134	3	30		
Styrene	ug/L	ND	20	20	21.4	22.9	107	114	72-125	7	30		
tert-Amylmethyl ether	ug/L	ND	20	20	17.4	18.1	87	91	67-125	4	30		
tert-Butyl Alcohol	ug/L	51.2	200	200	239	248	94	98	64-137	4	30		
tert-Butylbenzene	ug/L	ND	20	20	22.9	24.0	115	120	70-143	4	30		
Tetrachloroethene	ug/L	ND	20	20	21.6	23.9	108	119	72-129	10	30		
Tetrahydrofuran	ug/L	ND	200	200	179	198	90	99	66-128	10	30		
Toluene	ug/L	ND	20	20	18.8	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	17.8	17.0	89	85	62-137	5	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.2	18.9	91	95	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	ND	50	50	38.0	39.7	76	79	45-128	4	30		
Trichloroethene	ug/L	ND	20	20	21.9	21.4	110	107	74-132	2	30		
Trichlorofluoromethane	ug/L	ND	20	20	27.2	24.8	136	124	75-139	9	30		
Vinyl acetate	ug/L	ND	20	20	21.2	21.9	106	109	51-135	3	30		
Vinyl chloride	ug/L	ND	20	20	26.0	22.7	130	113	68-146	14	30		
Xylene (Total)	ug/L	ND	60	60	64.9	67.7	108	113	67-137	4	30		
1,2-Dichloroethane-d4 (S)	%						96	95	75-136				
4-Bromofluorobenzene (S)	%						95	100	75-125				
Toluene-d8 (S)	%						96	93	75-125				

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 640483 Analysis Method: SM 2320B
 QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
 Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3450268 Matrix: Water
 Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	10/24/19 08:36	

LABORATORY CONTROL SAMPLE & LCSD: 3450269 3450270

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	43.1	43.3	108	108	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450271 3450272

Parameter	Units	10495153015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	413	40	40	458	467	112	135	80-120	2	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450273 3450274

Parameter	Units	10495483001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	408	40	40	437	455	73	118	80-120	4	20	M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 639015

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3443322

Matrix: Water

Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	9.0J	10.0	5.0	10/17/19 15:11	

LABORATORY CONTROL SAMPLE: 3443323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 3443324

Parameter	Units	10495154002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	466	420	10	5	D6

SAMPLE DUPLICATE: 3443325

Parameter	Units	10495236001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	434	447	3	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

QC Batch: 161370 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 726397 Matrix: Water
Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0054	0.020	0.0054	10/16/19 15:47	

LABORATORY CONTROL SAMPLE: 726398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	93	90-110	

MATRIX SPIKE SAMPLE: 726400

Parameter	Units	20125500004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.040	20	75-125	M1

MATRIX SPIKE SAMPLE: 726402

Parameter	Units	20125503001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.19	96	75-125	

SAMPLE DUPLICATE: 726399

Parameter	Units	20125500004 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0054		20	

SAMPLE DUPLICATE: 726401

Parameter	Units	20125503001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0054		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

QC Batch: 637878 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3438507 Matrix: Water
Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.33J	1.2	0.12	10/12/19 09:10	FS
Nitrate as N	mg/L	<0.012	0.10	0.012	10/12/19 09:10	FS
Sulfate	mg/L	0.55J	1.2	0.28	10/12/19 09:10	FS

LABORATORY CONTROL SAMPLE: 3438508

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	13.5	108	90-110	FS
Nitrate as N	mg/L	1	1.1	110	90-110	FS
Sulfate	mg/L	12.5	13.3	106	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3438509 3438510

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10495165001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	20.1	12.5	12.5	29.9	30.1	79	80	90-110	1	20	M1	
Nitrate as N	mg/L	4.2	1	1	4.6	4.6	33	36	90-110	1	20	M1	
Sulfate	mg/L	16.1	12.5	12.5	28.5	28.4	99	98	90-110	0	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

QC Batch: 637909 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10495165001, 10495165002

METHOD BLANK: 3438835 Matrix: Water
Associated Lab Samples: 10495165001, 10495165002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	10/12/19 14:50	FS

LABORATORY CONTROL SAMPLE: 3438836

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3438837 3438838

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	4.3	5	5	9.4	9.2	102	99	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

QC Batch: 638692

Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Associated Lab Samples: 10495165003

METHOD BLANK: 3442019

Matrix: Water

Associated Lab Samples: 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	10/16/19 10:01	FS

LABORATORY CONTROL SAMPLE: 3442020

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	104	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3442021 3442022

Parameter	Units	3442021		3442022		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10495354001 Result	MS Spike Conc.	MSD Spike Conc.	MSD Result								
Nitrogen, NO2 plus NO3	mg/L	0.94	1	1	2.1	2.0	112	109	90-110	1	20	E,M1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

QC Batch: 638977 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 3443222 Matrix: Water
Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	10/17/19 16:32	

LABORATORY CONTROL SAMPLE: 3443223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	305	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443224 3443225

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10495165001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	259	255	101	100	90-110	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3443226 3443227

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10495165002 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	262	252	102	98	90-110	4	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495165

QC Batch: 177181 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10495165001, 10495165002, 10495165003

METHOD BLANK: 702005 Matrix: Water
Associated Lab Samples: 10495165001, 10495165002, 10495165003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	10/21/19 22:38	

LABORATORY CONTROL SAMPLE: 702006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 702007 702008

Parameter	Units	702007		702008		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		10495069001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	13.8	50	50	62.7	62.7	98	98	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 702009 702010

Parameter	Units	702009		702010		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		10495398001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	<393 ug/L	25	25	24.8	24.9	99	100	80-120	0	20

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

FS The sample was filtered in the laboratory prior to analysis.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495165

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10495165001	Marlow-GW-101019	RSK 175	639000		
10495165002	Marlow2-GW-101019	RSK 175	639000		
10495165003	Randall-GW-101019	RSK 175	639000		
10495165001	Marlow-GW-101019	EPA 3010	637957	EPA 6010D	638747
10495165002	Marlow2-GW-101019	EPA 3010	637957	EPA 6010D	638747
10495165003	Randall-GW-101019	EPA 3010	637957	EPA 6010D	638747
10495165001	Marlow-GW-101019	EPA 7470A	637995	EPA 7470A	638732
10495165002	Marlow2-GW-101019	EPA 7470A	637995	EPA 7470A	638732
10495165003	Randall-GW-101019	EPA 7470A	637995	EPA 7470A	638732
10495165004	Trip Blank	EPA 8260B	639765		
10495165001	Marlow-GW-101019	SM 2320B	640483		
10495165002	Marlow2-GW-101019	SM 2320B	640483		
10495165003	Randall-GW-101019	SM 2320B	640483		
10495165001	Marlow-GW-101019	SM 2540C	639015		
10495165002	Marlow2-GW-101019	SM 2540C	639015		
10495165003	Randall-GW-101019	SM 2540C	639015		
10495165001	Marlow-GW-101019	SM 4500-S-2 D	161370		
10495165002	Marlow2-GW-101019	SM 4500-S-2 D	161370		
10495165003	Randall-GW-101019	SM 4500-S-2 D	161370		
10495165001	Marlow-GW-101019	EPA 300.0	637878		
10495165002	Marlow2-GW-101019	EPA 300.0	637878		
10495165003	Randall-GW-101019	EPA 300.0	637878		
10495165001	Marlow-GW-101019	EPA 353.2	637909		
10495165002	Marlow2-GW-101019	EPA 353.2	637909		
10495165003	Randall-GW-101019	EPA 353.2	638692		
10495165001	Marlow-GW-101019	EPA 410.4	638977	EPA 410.4	639123
10495165002	Marlow2-GW-101019	EPA 410.4	638977	EPA 410.4	639123
10495165003	Randall-GW-101019	EPA 410.4	638977	EPA 410.4	639123
10495165001	Marlow-GW-101019	SM 5310C	177181		
10495165002	Marlow2-GW-101019	SM 5310C	177181		
10495165003	Randall-GW-101019	SM 5310C	177181		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: 1 Of 1
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh (awalsh@up.com)	
Address: 1400 W. 52nd Ave. Denver, CO 80221	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email: awalsh@up.com	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221	Regulatory Agency
Phone: _____ Fax: _____	Purchase Order #: 1497-38-Rev0	Pace Quote: _____ Contract#: 9900758938	State / Location
Requested Due Date: 24 Hr / 3 Day / 10 Day	Project Name: Freeman, WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross	WA / Freeman
	Project #: _____	Pace Profile #: 36447/1	

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE: (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Y/N	Requested Analysis Filtered (Y/N)											
						DATE	TIME	DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Analyses Test		Low Level VOCs by 8260	Hold										
1	Marlow-GW-101019				WT G	10/10	1305	---	---	10	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	001
2	Marlow Z-GW-101019				↓	↓	↓	↓	↓	↓	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	002	
3	Randall-GW-101019				↓	↓	↓	↓	↓	↓	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	003	
4	TB-101019				WT G	10/10	700	---	---	3						X														004	
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

WO#: 10495165



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>JTE</i>	10/10/19	1600	<i>Ace</i>	10/11/19	855	1.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on (cc) (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Jonathan Espinoza					
SIGNATURE of SAMPLER:	<i>JTE</i>	DATE Signed:	10/10/19			

Sample Condition Upon Receipt	Client Name: <u>UPRR Jacobs</u>	Project #: WO# : 10495165
Courier:	<input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial <input type="checkbox"/> See Exceptions	PM: JMG Due Date: 10/16/19 CLIENT: UPRR_Jacobs
Tracking Number:	<u>7475 9399 4853</u>	

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: pb **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.3</u> °C	Average Corrected Temp
Correction Factor: <u>TRUE</u>	Cooler Temp Corrected w/temp blank: <u>1.3</u> °C	(no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** ALM 10.11.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-3: 1/1, 1-3: 1/1, 1-3: 1/1</u>
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
	Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
	<u>203419</u> <u>1029281</u>
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u># 225258</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Field Data Required? Yes No

Project Manager Review: JENNI GROSS **Date:** 10/11/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: ALM Page 49 of 53



12137050

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10495165 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 10/11/2019 Results Requested By: 10/25/2019

Report To		Subcontract To		Requested Analysis																																			
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042																																					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					5632354 / 5310 TOC	LAB USE ONLY																											
						DG95																																	
1	Marlow-GW-101019	PS	10/10/2019 13:05	10495165001	Water	2					X																												
2	Marlow2-GW-101019	PS	10/10/2019 13:30	10495165002	Water	2					X																												
3	Randall-GW-101019	PS	10/10/2019 14:10	10495165003	Water	2					X																												
4																																							
5																																							

					Comments									
Transfers	Released By	Date/Time	Received By	Date/Time										
1	<i>Collinspace</i>	10/14/19 16:55	<i>[Signature]</i>	10/14/19 16:20										
2	<i>[Signature]</i>	10/14/19	<i>B Mathews</i>	10/15/19 06:30										
3														

Cooler Temperature on Receipt *0.5* °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name:

Project #:

Pace WA

WO#: 12137050

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

PM: RK1 Due Date: 10/25/19
 CLIENT: PACE MPLS

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.5 Cooler Temp Corrected °C: 0.8 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 0.3 Date and Initials of Person Examining Contents: 10/14/19 DC

Comments:

Bm 10/15/19

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review:

Lauren Ferrier

Date: 10/15/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 20125953

Chain of Custody

Samples were sent directly to the Subcontracting



20125953



IA Yes No

Workorder: 10495165 Workorder Name: Freeman WA-Cenex Harvest Lease Owner Received Date: 10/11/2019 Results Requested By: 10/25/2019

Report To		Subcontract To					Requested Analysis												
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Other BP2Z											Preserved Containers		
1	Marlow-GW-101019	PS	10/10/2019 13:05	10495165001	Water	1					X								
2	Marlow2-GW-101019	PS	10/10/2019 13:30	10495165002	Water	1					X								
3	Randall-GW-101019	PS	10/10/2019 14:10	10495165003	Water	1					X								
4																			
5																			

Transfers				Comments			
Released By	Date/Time	Received By	Date/Time				
<i>[Signature]</i>	10/19/19 13:05	<i>[Signature]</i>	10/18 8:35				

Cooler Temperature on Receipt 26 °C Custody Seal or N Received on Ice or N Samples Intact or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Up

WO#: 20125953

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

PM: CMM Due Date: 10/25/19

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10-15-19

Temp must be measured from Temperature blank when present	Comments:
Temperature Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G). <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

October 24, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

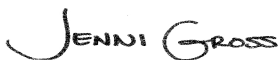
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495169

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

CNMI Saipan Certification #: MP0003

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

Guam EPA Certification #: MN00064

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: 03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10495169001	Randall-GW-101019	Water	10/10/19 14:10	10/11/19 08:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10495169001	Randall-GW-101019	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10495169001	Randall-GW-101019					
EPA 8260B	Carbon disulfide	2.9	ug/L	1.0	10/21/19 19:48	CL
EPA 8260B	Carbon tetrachloride	218	ug/L	2.5	10/22/19 19:30	
EPA 8260B	Chloroform	8.0	ug/L	1.0	10/21/19 19:48	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 639765

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 3447115)
 - Carbon disulfide
- LCS (Lab ID: 3447116)
 - Carbon disulfide
- MS (Lab ID: 3449784)
 - Carbon disulfide
- MSD (Lab ID: 3449785)
 - Carbon disulfide
- Randall-GW-101019 (Lab ID: 10495169001)
 - Carbon disulfide

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: October 24, 2019

Analyte Comments:

QC Batch: 639765

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3447115)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3447116)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3449784)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3449785)
 - 1,2-Dichloroethene (Total)
- Randall-GW-101019 (Lab ID: 10495169001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3447115)
 - Dichlorofluoromethane
- LCS (Lab ID: 3447116)
 - Dichlorofluoromethane
- MS (Lab ID: 3449784)
 - Dichlorofluoromethane
- MSD (Lab ID: 3449785)
 - Dichlorofluoromethane
- Randall-GW-101019 (Lab ID: 10495169001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Sample: **Randall-GW-101019** Lab ID: **10495169001** Collected: 10/10/19 14:10 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		10/21/19 19:48	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		10/21/19 19:48	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 19:48	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		10/21/19 19:48	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	4.0	0.22	1		10/21/19 19:48	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		10/21/19 19:48	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:48	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		10/21/19 19:48	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 19:48	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		10/21/19 19:48	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	1.0	0.20	1		10/21/19 19:48	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		10/21/19 19:48	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		10/21/19 19:48	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	1.0	0.24	1		10/21/19 19:48	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 19:48	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		10/21/19 19:48	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		10/21/19 19:48	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		10/21/19 19:48	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		10/21/19 19:48	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:48	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		10/21/19 19:48	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		10/21/19 19:48	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		10/21/19 19:48	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		10/21/19 19:48	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		10/21/19 19:48	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		10/21/19 19:48	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:48	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		10/21/19 19:48	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		10/21/19 19:48	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		10/21/19 19:48	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		10/21/19 19:48	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		10/21/19 19:48	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		10/21/19 19:48	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		10/21/19 19:48	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		10/21/19 19:48	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		10/21/19 19:48	74-97-5	
Bromodichloromethane	<0.22	ug/L	1.0	0.22	1		10/21/19 19:48	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		10/21/19 19:48	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		10/21/19 19:48	74-83-9	
Carbon disulfide	2.9	ug/L	1.0	0.19	1		10/21/19 19:48	75-15-0	CL
Carbon tetrachloride	218	ug/L	2.5	0.94	5		10/22/19 19:30	56-23-5	
Chlorobenzene	<0.17	ug/L	1.0	0.17	1		10/21/19 19:48	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		10/21/19 19:48	75-00-3	
Chloroform	8.0	ug/L	1.0	0.45	1		10/21/19 19:48	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		10/21/19 19:48	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		10/21/19 19:48	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Sample: Randall-GW-101019 **Lab ID: 10495169001** Collected: 10/10/19 14:10 Received: 10/11/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		10/21/19 19:48	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		10/21/19 19:48	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		10/21/19 19:48	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		10/21/19 19:48	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		10/21/19 19:48	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		10/21/19 19:48	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		10/21/19 19:48	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		10/21/19 19:48	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		10/21/19 19:48	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		10/21/19 19:48	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		10/21/19 19:48	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		10/21/19 19:48	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		10/21/19 19:48	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		10/21/19 19:48	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		10/21/19 19:48	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		10/21/19 19:48	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		10/21/19 19:48	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		10/21/19 19:48	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		10/21/19 19:48	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		10/21/19 19:48	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		10/21/19 19:48	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	4.0	0.20	1		10/21/19 19:48	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		10/21/19 19:48	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		10/21/19 19:48	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		10/21/19 19:48	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		10/21/19 19:48	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:48	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:48	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		10/21/19 19:48	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		10/21/19 19:48	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		10/21/19 19:48	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		10/21/19 19:48	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	4.0	0.18	1		10/21/19 19:48	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	25.0	2.0	1		10/21/19 19:48	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	75-136		1		10/21/19 19:48	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1		10/21/19 19:48	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125		1		10/21/19 19:48	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

QC Batch: 639765

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10495169001

METHOD BLANK: 3447115

Matrix: Water

Associated Lab Samples: 10495169001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	4.0	0.22	10/21/19 10:39	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	10/21/19 10:39	
1,2,4-Trichlorobenzene	ug/L	<0.20	1.0	0.20	10/21/19 10:39	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	10/21/19 10:39	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	10/21/19 10:39	
1,2-Dibromoethane (EDB)	ug/L	<0.24	1.0	0.24	10/21/19 10:39	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	10/21/19 10:39	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	10/21/19 10:39	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	10/21/19 10:39	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	10/21/19 10:39	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	10/21/19 10:39	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	10/21/19 10:39	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
2-Hexanone	ug/L	<0.88	5.0	0.88	10/21/19 10:39	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	10/21/19 10:39	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	10/21/19 10:39	
Acetone	ug/L	<9.2	20.0	9.2	10/21/19 10:39	
Acrolein	ug/L	<3.2	10.0	3.2	10/21/19 10:39	
Acrylonitrile	ug/L	<0.91	10.0	0.91	10/21/19 10:39	
Benzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Bromobenzene	ug/L	<0.21	0.50	0.21	10/21/19 10:39	
Bromochloromethane	ug/L	<0.27	1.0	0.27	10/21/19 10:39	
Bromodichloromethane	ug/L	<0.22	1.0	0.22	10/21/19 10:39	
Bromoform	ug/L	<0.80	4.0	0.80	10/21/19 10:39	
Bromomethane	ug/L	<1.8	4.0	1.8	10/21/19 10:39	
Carbon disulfide	ug/L	<0.19	1.0	0.19	10/21/19 10:39	CL
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	10/21/19 10:39	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

METHOD BLANK: 3447115

Matrix: Water

Associated Lab Samples: 10495169001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	1.0	0.17	10/21/19 10:39	
Chloroethane	ug/L	<0.49	1.0	0.49	10/21/19 10:39	
Chloroform	ug/L	<0.45	1.0	0.45	10/21/19 10:39	
Chloromethane	ug/L	<0.48	4.0	0.48	10/21/19 10:39	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	10/21/19 10:39	
cis-1,3-Dichloropropene	ug/L	<0.20	4.0	0.20	10/21/19 10:39	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	10/21/19 10:39	
Dibromomethane	ug/L	<0.16	1.0	0.16	10/21/19 10:39	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	10/21/19 10:39	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	10/21/19 10:39	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	10/21/19 10:39	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	10/21/19 10:39	
Ethylbenzene	ug/L	<0.14	0.50	0.14	10/21/19 10:39	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	10/21/19 10:39	
m&p-Xylene	ug/L	<0.31	1.0	0.31	10/21/19 10:39	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
Methylene Chloride	ug/L	<0.98	4.0	0.98	10/21/19 10:39	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	10/21/19 10:39	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	10/21/19 10:39	
Naphthalene	ug/L	<0.48	1.0	0.48	10/21/19 10:39	
o-Xylene	ug/L	<0.16	0.50	0.16	10/21/19 10:39	
p-Isopropyltoluene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Styrene	ug/L	<0.19	0.50	0.19	10/21/19 10:39	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	10/21/19 10:39	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	10/21/19 10:39	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	10/21/19 10:39	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	10/21/19 10:39	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	10/21/19 10:39	
Toluene	ug/L	<0.083	0.50	0.083	10/21/19 10:39	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	10/21/19 10:39	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	0.18	10/21/19 10:39	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25.0	2.0	10/21/19 10:39	
Trichloroethene	ug/L	<0.15	0.40	0.15	10/21/19 10:39	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	10/21/19 10:39	
Vinyl acetate	ug/L	<1.1	10.0	1.1	10/21/19 10:39	
Vinyl chloride	ug/L	<0.092	0.20	0.092	10/21/19 10:39	
Xylene (Total)	ug/L	<0.31	1.5	0.31	10/21/19 10:39	
1,2-Dichloroethane-d4 (S)	%	96	75-136		10/21/19 10:39	
4-Bromofluorobenzene (S)	%	100	75-125		10/21/19 10:39	
Toluene-d8 (S)	%	97	75-125		10/21/19 10:39	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	109	68-141	
1,1,1-Trichloroethane	ug/L	20	21.0	105	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	18.9	94	73-125	
1,1,2-Trichloroethane	ug/L	20	18.9	95	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.5	87	69-132	
1,1-Dichloroethane	ug/L	20	18.1	90	73-125	
1,1-Dichloroethene	ug/L	20	16.4	82	71-126	
1,1-Dichloropropene	ug/L	20	20.0	100	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.0	115	72-126	
1,2,3-Trichloropropane	ug/L	20	18.1	90	75-126	
1,2,4-Trichlorobenzene	ug/L	20	21.4	107	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.9	104	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.8	92	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	20.4	102	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	100	75-129	
1,2-Dichloroethane	ug/L	20	16.9	85	75-125	
1,2-Dichloroethene (Total)	ug/L	40	36.5	91	74-125	N2
1,2-Dichloropropane	ug/L	20	19.5	97	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.6	103	75-127	
1,3-Dichlorobenzene	ug/L	20	20.8	104	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	19.0	95	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	399	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	18.1	91	72-128	
2,2-Dichloropropane	ug/L	20	23.5	118	65-138	
2-Butanone (MEK)	ug/L	100	95.6	96	59-144	
2-Chlorotoluene	ug/L	20	20.2	101	75-127	
2-Hexanone	ug/L	100	104	104	73-134	
4-Chlorotoluene	ug/L	20	20.9	105	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	90.1	90	62-141	
Acetone	ug/L	100	137	137	60-137	
Acrolein	ug/L	200	173	87	60-141	
Acrylonitrile	ug/L	200	193	96	75-129	
Benzene	ug/L	20	17.3	87	73-125	
Bromobenzene	ug/L	20	18.5	92	73-125	
Bromochloromethane	ug/L	20	17.4	87	75-135	
Bromodichloromethane	ug/L	20	21.7	109	75-125	
Bromoform	ug/L	20	20.6	103	67-136	
Bromomethane	ug/L	20	17.6	88	30-150	
Carbon disulfide	ug/L	20	9.4	47	47-137	CL
Carbon tetrachloride	ug/L	20	21.0	105	75-125	
Chlorobenzene	ug/L	20	19.9	99	75-125	
Chloroethane	ug/L	20	21.6	108	63-136	
Chloroform	ug/L	20	17.8	89	73-128	
Chloromethane	ug/L	20	21.9	109	55-130	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.9	100	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

LABORATORY CONTROL SAMPLE: 3447116

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.8	109	75-125	
Dibromomethane	ug/L	20	21.6	108	75-125	
Dichlorodifluoromethane	ug/L	20	24.7	124	63-132	
Dichlorofluoromethane	ug/L	20	19.8	99	68-127	
Diisopropyl ether	ug/L	20	17.6	88	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	89	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Hexachloro-1,3-butadiene	ug/L	20	23.0	115	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.5	108	75-125	
m&p-Xylene	ug/L	40	40.4	101	75-126	
Methyl-tert-butyl ether	ug/L	20	17.3	86	75-125	
Methylene Chloride	ug/L	20	16.5	82	70-125	
n-Butylbenzene	ug/L	20	22.1	111	75-126	
n-Propylbenzene	ug/L	20	20.7	103	73-127	
Naphthalene	ug/L	20	19.9	100	63-128	
o-Xylene	ug/L	20	20.2	101	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.6	108	75-126	
Styrene	ug/L	20	21.3	107	75-125	
tert-Amylmethyl ether	ug/L	20	17.9	89	75-125	
tert-Butyl Alcohol	ug/L	200	231	115	75-130	
tert-Butylbenzene	ug/L	20	21.5	108	75-131	
Tetrachloroethene	ug/L	20	20.6	103	74-125	
Tetrahydrofuran	ug/L	200	185	92	64-138	
Toluene	ug/L	20	18.5	92	74-125	
trans-1,2-Dichloroethene	ug/L	20	16.3	81	68-128	
trans-1,3-Dichloropropene	ug/L	20	18.3	92	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	46.5	93	60-127	
Trichloroethene	ug/L	20	20.6	103	75-127	
Trichlorofluoromethane	ug/L	20	22.6	113	72-133	
Vinyl acetate	ug/L	20	21.2	106	61-129	
Vinyl chloride	ug/L	20	21.6	108	75-128	
Xylene (Total)	ug/L	60	60.7	101	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			97	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449784 3449785

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.8	22.8	109	114	75-140	4	30
1,1,1-Trichloroethane	ug/L	ND	20	20	23.1	22.0	116	110	74-136	5	30
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	20.2	87	101	66-134	15	30
1,1,2-Trichloroethane	ug/L	ND	20	20	18.9	20.0	95	100	75-126	5	30

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3449784			3449785								
Parameter	Units	10496666001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	20.6	20.0	103	100	65-146	3	30		
1,1-Dichloroethane	ug/L	ND	20	20	19.7	18.3	98	92	68-132	7	30		
1,1-Dichloroethene	ug/L	ND	20	20	18.6	17.3	93	86	66-139	8	30		
1,1-Dichloropropene	ug/L	ND	20	20	21.8	21.7	109	109	67-134	0	30		
1,2,3-Trichlorobenzene	ug/L	ND	20	20	24.6	25.2	123	126	67-129	2	30		
1,2,3-Trichloropropane	ug/L	ND	20	20	16.3	19.2	82	96	69-128	16	30		
1,2,4-Trichlorobenzene	ug/L	ND	20	20	23.7	24.3	119	121	65-140	2	30		
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.1	23.8	111	119	71-133	7	30		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	39.3	49.1	79	98	54-138	22	30		
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	19.2	20.4	96	102	68-125	6	30		
1,2-Dichlorobenzene	ug/L	ND	20	20	20.4	22.1	102	111	74-136	8	30		
1,2-Dichloroethane	ug/L	ND	20	20	17.5	17.4	88	87	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	ND	40	40	39.3	38.1	98	95	71-126	3	30	N2	
1,2-Dichloropropane	ug/L	ND	20	20	18.5	20.4	93	102	67-125	9	30		
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.0	23.2	110	116	68-137	5	30		
1,3-Dichlorobenzene	ug/L	ND	20	20	21.1	23.1	106	116	75-131	9	30		
1,3-Dichloropropane	ug/L	ND	20	20	17.8	19.8	89	99	71-125	11	30		
1,4-Dichlorobenzene	ug/L	ND	20	20	19.4	21.1	97	106	74-126	8	30		
1,4-Dioxane (p-Dioxane)	ug/L	ND	400	400	381	393	95	98	68-125	3	30		
2,2,4-Trimethylpentane	ug/L	ND	20	20	20.3	19.2	102	96	54-129	6	30		
2,2-Dichloropropane	ug/L	ND	20	20	26.6	24.3	133	122	69-139	9	30		
2-Butanone (MEK)	ug/L	ND	100	100	74.4	84.9	74	85	54-144	13	30		
2-Chlorotoluene	ug/L	ND	20	20	21.7	22.9	109	114	75-134	5	30		
2-Hexanone	ug/L	ND	100	100	85.9	105	86	105	58-137	20	30		
4-Chlorotoluene	ug/L	ND	20	20	21.6	23.2	108	116	72-133	7	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	78.8	98.1	79	98	60-129	22	30		
Acetone	ug/L	ND	100	100	91.9	90.2	92	90	62-132	2	30		
Acrolein	ug/L	ND	200	200	202	216	101	108	30-150	7	30		
Acrylonitrile	ug/L	ND	200	200	190	204	95	102	68-125	7	30		
Benzene	ug/L	ND	20	20	17.7	17.7	88	89	68-125	0	30		
Bromobenzene	ug/L	ND	20	20	17.8	19.8	89	99	73-126	11	30		
Bromochloromethane	ug/L	ND	20	20	18.7	18.6	94	93	66-143	1	30		
Bromodichloromethane	ug/L	ND	20	20	21.2	22.9	106	114	74-125	8	30		
Bromoform	ug/L	ND	20	20	18.6	21.5	93	108	64-134	14	30		
Bromomethane	ug/L	ND	20	20	20.7	20.6	104	103	30-150	1	30		
Carbon disulfide	ug/L	ND	20	20	11.6	10	58	50	43-147	15	30	CL	
Carbon tetrachloride	ug/L	ND	20	20	23.1	22.9	115	114	71-143	1	30		
Chlorobenzene	ug/L	ND	20	20	20.2	20.8	101	104	75-125	3	30		
Chloroethane	ug/L	ND	20	20	24.2	20.6	117	100	75-129	16	30		
Chloroform	ug/L	ND	20	20	18.1	18.0	90	90	66-132	0	30		
Chloromethane	ug/L	ND	20	20	27.0	23.4	135	117	53-137	14	30		
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.1	107	105	67-133	2	30		
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.1	19.7	91	99	66-125	9	30		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449784												3449785	
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10496666001 Result	Spike Conc.	Spike Conc.	MS Conc.								
Dibromochloromethane	ug/L	ND	20	20	20.9	22.7	105	114	62-132	8	30		
Dibromomethane	ug/L	ND	20	20	20.7	22.4	104	112	67-125	8	30		
Dichlorodifluoromethane	ug/L	ND	20	20	28.2	26.1	141	130	71-142	8	30		
Dichlorofluoromethane	ug/L	ND	20	20	23.9	21.7	119	108	70-131	10	30		
Diisopropyl ether	ug/L	50.1	20	20	68.6	72.3	92	111	63-131	5	30		
Ethyl-tert-butyl ether	ug/L	ND	20	20	17.8	18.4	89	92	66-128	3	30		
Ethylbenzene	ug/L	ND	20	20	20.5	21.8	102	109	74-126	6	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	28.1	23.9	141	119	68-143	16	30		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.3	24.9	112	125	74-130	11	30		
m&p-Xylene	ug/L	ND	40	40	43.4	44.9	109	112	69-132	3	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	18.8	86	94	65-131	8	30		
Methylene Chloride	ug/L	ND	20	20	18.3	17.0	91	85	57-125	7	30		
n-Butylbenzene	ug/L	ND	20	20	24.5	24.4	122	122	71-131	0	30		
n-Propylbenzene	ug/L	ND	20	20	22.4	22.9	112	114	67-138	2	30		
Naphthalene	ug/L	ND	20	20	20.1	22.5	101	112	60-130	11	30		
o-Xylene	ug/L	ND	20	20	21.5	22.8	107	114	69-131	6	30		
p-Isopropyltoluene	ug/L	ND	20	20	23.6	24.5	118	123	72-133	4	30		
sec-Butylbenzene	ug/L	ND	20	20	24.0	24.7	120	123	73-134	3	30		
Styrene	ug/L	ND	20	20	21.4	22.9	107	114	72-125	7	30		
tert-Amylmethyl ether	ug/L	ND	20	20	17.4	18.1	87	91	67-125	4	30		
tert-Butyl Alcohol	ug/L	51.2	200	200	239	248	94	98	64-137	4	30		
tert-Butylbenzene	ug/L	ND	20	20	22.9	24.0	115	120	70-143	4	30		
Tetrachloroethene	ug/L	ND	20	20	21.6	23.9	108	119	72-129	10	30		
Tetrahydrofuran	ug/L	ND	200	200	179	198	90	99	66-128	10	30		
Toluene	ug/L	ND	20	20	18.8	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	17.8	17.0	89	85	62-137	5	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.2	18.9	91	95	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	ND	50	50	38.0	39.7	76	79	45-128	4	30		
Trichloroethene	ug/L	ND	20	20	21.9	21.4	110	107	74-132	2	30		
Trichlorofluoromethane	ug/L	ND	20	20	27.2	24.8	136	124	75-139	9	30		
Vinyl acetate	ug/L	ND	20	20	21.2	21.9	106	109	51-135	3	30		
Vinyl chloride	ug/L	ND	20	20	26.0	22.7	130	113	68-146	14	30		
Xylene (Total)	ug/L	ND	60	60	64.9	67.7	108	113	67-137	4	30		
1,2-Dichloroethane-d4 (S)	%						96	95	75-136				
4-Bromofluorobenzene (S)	%						95	100	75-125				
Toluene-d8 (S)	%						96	93	75-125				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10495169

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10495169

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10495169001	Randall-GW-101019	EPA 8260B	639765		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh (awalsh@up.com)	
Address: 1400 W. 52nd Ave. Denver, CO 80221	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email: awalsh@up.com	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone: _____ Fax: _____	Purchase Order #: 1497-38-Rev0	Pace Quote: Contract# 9900758938	Regulatory Agency
Requested Due Date: 24 Hr / 3 Day 10 Day	Project Name: Freeman,WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross	State / Location
	Project #: _____	Pace Profile #: 36447 / 1	WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique	MATRIX Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Y/N	Requested Analysis Filtered (Y/N)				ANALYSES TEST	Low Level VOCs by 8260	Hold						
						DATE	TIME	DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other														
1	Randall-Gw-101019			WT	G	10/10	1410				3		X					X													
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

WO#: 10495169



10495169

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>John Li Jacobs</i>	10/10/19	1600	<i>Anne Walsh</i>	10.11.19	845	1.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Jonathan Espinoza
SIGNATURE of SAMPLER:	<i>John Li</i>
DATE Signed:	10/10/19

TEMP in C	
Received on	
its (Y/N)	
Custody	
Sealed	
Cooler	
(Y/N)	
Samples	
Intact	
(Y/N)	



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.29

Document Revised: 23Aug2019
Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: UPRR Jacobs

Project #: **WO# : 10495169**

PM: JMG Due Date: 10/25/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial See Exceptions

Tracking Number: 7475 9399 4853

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: pb Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.3</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>TRUE</u>	Cooler Temp Corrected w/temp blank: <u>1.7</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: ALM 10.11.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
	Chlorine? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes pH Paper Lot#
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. Trip Blank shared with <u>WO 10495105</u> <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>225258</u>

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: JENNI GROSS Date: 10/11/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: ALM (1) Page 20 of 20

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

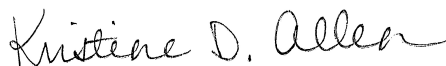
TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-60846-1
Client Project/Site: UPRR Freeman

For:
CH2M Hill, Inc.
2020 SW 4th Ave
Suite 300
Portland, Oregon 97201

Attn: nathan williams



Authorized for release by:
7/14/2016 11:23:21 AM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Job ID: 580-60846-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-60846-1

Comments

No additional comments.

Receipt

The samples were received on 7/7/2016 3:08 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.8° C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): SB20-SS-20 (580-60846-13).

One stirbar vial had a time of 1525, logged in per COC with time of 1520. All the sample ID's match.

GC/MS VOA

Method(s) 8260C: The surrogate recovery for the method blank and LCS associated with preparation batch 580-221805 and analytical batch 580-221931 was outside the upper control limits.

Method(s) 8260C: The laboratory control sample (LCS) for preparation batch 580-221805 and analytical batch 580-221931 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-221856 recovered above the upper control limit for multiple analytes. The samples associated with this CCV were non-detects for the affected analytes with the exception of samples SB20-SS-25 (580-60846-14), SB20-SS-30 (580-60846-15), SB20-SS-35 (580-60846-16), SB20-SS-39 (580-60846-17); therefore, the data have been reported. Samples SB20-SS-25 (580-60846-14), SB20-SS-30 (580-60846-15), SB20-SS-35 (580-60846-16), SB20-SS-39 (580-60846-17) contained the target analytes Carbon tetrachloride and Chloroform above the reporting limit. No sample vials remained for further re-analysis, therefore the data has been reported as estimated with a potential high bias. The following samples are impacted: SB20-SS-25 (580-60846-14), SB20-SS-30 (580-60846-15), SB20-SS-35 (580-60846-16), SB20-SS-39 (580-60846-17), FD-SS-070616 (580-60846-18), FD2-SS-070616 (580-60846-19) and (CCVIS 580-221856/4).

Method(s) 8260C: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-221886 and analytical batch 580-221856 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-222135 recovered above the upper control limit for Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW1-SS-20 (580-60846-4), MW1-SS-25 (580-60846-5), MW1-SS-30 (580-60846-6), MW1-SS-35 (580-60846-7), MW1-SS-40 (580-60846-8), MW1-SS-45 (580-60846-9), SB20-SS-05 (580-60846-10), SB20-SS-10 (580-60846-11), SB20-SS-15 (580-60846-12), SB20-SS-20 (580-60846-13) and (CCVIS 580-222135/4).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-221931 recovered above the upper control limit multiple analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW1-SS-05 (580-60846-1), MW1-SS-10 (580-60846-2), MW1-SS-15 (580-60846-3) and (CCVIS 580-221931/4).

Method(s) 8260C: Surrogate recovery for the following samples was outside the upper control limit: MW1-SS-05 (580-60846-1) and MW1-SS-15 (580-60846-3), SB20-SS-39 (580-60846-17), FD-SS-070616 (580-60846-18), FD2-SS-070616 (580-60846-19). The samples did not contain any target analytes above the reporting limit; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8260C: Surrogate recovery for the following samples was outside the upper control limit: SB20-SS-25 (580-60846-14), SB20-SS-30 (580-60846-15), SB20-SS-35 (580-60846-16), SB20-SS-39 (580-60846-17). No sample vials remained for further

Case Narrative

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Job ID: 580-60846-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

re-analysis, therefore the data has been reported as estimated with a potential high bias.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-05

Lab Sample ID: 580-60846-1

Date Collected: 07/06/16 09:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 87.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,1,1,2-Tetrachloroethane	ND	*	4.6	1.0	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,1,2-Trichloroethane	ND	*	2.3	0.29	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,1,2-Trichlorotrifluoroethane	ND		3.5	0.60	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,1-Dichloroethane	ND	*	1.2	0.22	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,1-Dichloroethene	ND		5.8	0.58	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,2,4-Trichlorobenzene	0.72	J	2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,2,4-Trimethylbenzene	ND	*	2.3	0.18	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,2-Dibromoethane	ND	*	1.2	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,2-Dichlorobenzene	ND	*	2.3	0.36	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,2-Dichloroethane	ND	*	1.2	0.17	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,3,5-Trimethylbenzene	ND	*	5.8	0.20	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,3-Dichlorobenzene	ND	*	2.3	0.30	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
1,4-Dichlorobenzene	ND	*	1.2	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
2-Butanone	ND		46	10	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
2-Hexanone	ND	*	23	4.5	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
4-Methyl-2-pentanone	ND	*	12	1.7	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Acetone	ND	*	17	2.8	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Benzene	ND	*	2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Bromodichloromethane	ND	*	1.2	0.21	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Bromoform	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Bromomethane	ND		1.2	0.24	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Carbon tetrachloride	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Chlorobenzene	ND	*	2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Chloroethane	ND		2.3	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Chloroform	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Chloromethane	ND		1.2	0.16	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
cis-1,2-Dichloroethene	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
cis-1,3-Dichloropropene	ND	*	1.2	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Dibromochloromethane	ND		2.3	0.31	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Dichlorodifluoromethane	ND		2.3	0.57	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Ethylbenzene	ND	*	2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Hexachloro-1,3-butadiene	ND		3.5	0.69	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Methyl tert-butyl ether	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Methylene Chloride	ND		17	0.28	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
m-Xylene & p-Xylene	ND		2.3	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Naphthalene	ND		12	2.1	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
o-Xylene	ND		2.3	0.30	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Styrene	ND	*	2.3	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Tetrachloroethene	ND	*	2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Tetrahydrofuran	ND	*	120	24	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Toluene	ND	*	2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
trans-1,2-Dichloroethene	ND		2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
trans-1,3-Dichloropropene	ND	*	12	1.6	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Trichloroethene	ND	*	2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Trichlorofluoromethane	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Vinyl acetate	ND		5.8	0.69	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1
Vinyl chloride	ND		2.3	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 22:11	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-05

Lab Sample ID: 580-60846-1

Date Collected: 07/06/16 09:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 87.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	131	X	81 - 121	07/07/16 16:42	07/08/16 22:11	1
4-Bromofluorobenzene (Surr)	95		79 - 120	07/07/16 16:42	07/08/16 22:11	1
Dibromofluoromethane (Surr)	117		78 - 118	07/07/16 16:42	07/08/16 22:11	1
Toluene-d8 (Surr)	102		79 - 119	07/07/16 16:42	07/08/16 22:11	1
Trifluorotoluene (Surr)	89		52 - 152	07/07/16 16:42	07/08/16 22:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.9		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	12.1		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-10

Lab Sample ID: 580-60846-2

Date Collected: 07/06/16 09:15

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 66.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,1,1,2-Tetrachloroethane	ND	*	5.1	1.1	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,1,2-Trichloroethane	ND	*	2.5	0.32	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,1,2-Trichlorotrifluoroethane	ND		3.8	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,1-Dichloroethane	ND	*	1.3	0.24	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,1-Dichloroethene	ND		6.4	0.64	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,2,4-Trichlorobenzene	0.66	J	2.5	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,2,4-Trimethylbenzene	ND	*	2.5	0.20	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,2-Dibromoethane	ND	*	1.3	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,2-Dichlorobenzene	ND	*	2.5	0.39	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,2-Dichloroethane	ND	*	1.3	0.19	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,3,5-Trimethylbenzene	ND	*	6.4	0.22	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,3-Dichlorobenzene	ND	*	2.5	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
1,4-Dichlorobenzene	ND	*	1.3	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
2-Butanone	ND		51	11	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
2-Hexanone	ND	*	25	5.0	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
4-Methyl-2-pentanone	ND	*	13	1.9	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Acetone	ND	*	19	3.1	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Benzene	ND	*	2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Bromodichloromethane	ND	*	1.3	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Bromoform	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Bromomethane	ND		1.3	0.27	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Carbon tetrachloride	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Chlorobenzene	ND	*	2.5	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Chloroethane	ND		2.5	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Chloroform	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Chloromethane	ND		1.3	0.18	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
cis-1,2-Dichloroethene	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
cis-1,3-Dichloropropene	ND	*	1.3	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Dibromochloromethane	ND		2.5	0.34	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Dichlorodifluoromethane	ND		2.5	0.62	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Ethylbenzene	ND	*	2.5	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Hexachloro-1,3-butadiene	ND		3.8	0.76	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Methyl tert-butyl ether	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Methylene Chloride	ND		19	0.31	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
m-Xylene & p-Xylene	ND		2.5	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Naphthalene	ND		13	2.3	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
o-Xylene	ND		2.5	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Styrene	ND	*	2.5	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Tetrachloroethene	ND	*	2.5	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Tetrahydrofuran	ND	*	130	26	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Toluene	ND	*	2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
trans-1,2-Dichloroethene	ND		2.5	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
trans-1,3-Dichloropropene	ND	*	13	1.8	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Trichloroethene	ND	*	2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Trichlorofluoromethane	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Vinyl acetate	ND		6.4	0.76	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1
Vinyl chloride	ND		2.5	0.38	ug/Kg	☼	07/07/16 16:42	07/08/16 22:39	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-10

Lab Sample ID: 580-60846-2

Date Collected: 07/06/16 09:15

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 66.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		81 - 121	07/07/16 16:42	07/08/16 22:39	1
4-Bromofluorobenzene (Surr)	94		79 - 120	07/07/16 16:42	07/08/16 22:39	1
Dibromofluoromethane (Surr)	114		78 - 118	07/07/16 16:42	07/08/16 22:39	1
Toluene-d8 (Surr)	104		79 - 119	07/07/16 16:42	07/08/16 22:39	1
Trifluorotoluene (Surr)	88		52 - 152	07/07/16 16:42	07/08/16 22:39	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	66.1		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	33.9		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-15

Lab Sample ID: 580-60846-3

Date Collected: 07/06/16 09:20

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 64.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,1,2,2-Tetrachloroethane	ND	*	6.6	1.5	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,1,2-Trichloroethane	ND	*	3.3	0.41	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,1,2-Trichlorotrifluoroethane	ND		4.9	0.86	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,1-Dichloroethane	ND	*	1.6	0.31	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,1-Dichloroethene	ND		8.2	0.82	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,2,4-Trichlorobenzene	ND		3.3	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,2,4-Trimethylbenzene	ND	*	3.3	0.26	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,2-Dibromoethane	ND	*	1.6	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,2-Dichlorobenzene	ND	*	3.3	0.51	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,2-Dichloroethane	ND	*	1.6	0.25	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,3,5-Trimethylbenzene	ND	*	8.2	0.28	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,3-Dichlorobenzene	ND	*	3.3	0.43	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
1,4-Dichlorobenzene	ND	*	1.6	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
2-Butanone	ND		66	15	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
2-Hexanone	ND	*	33	6.4	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
4-Methyl-2-pentanone	ND	*	16	2.5	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Acetone	ND	*	25	3.9	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Benzene	ND	*	3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Bromodichloromethane	ND	*	1.6	0.30	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Bromoform	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Bromomethane	ND		1.6	0.35	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Carbon tetrachloride	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Chlorobenzene	ND	*	3.3	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Chloroethane	ND		3.3	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Chloroform	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Chloromethane	ND		1.6	0.23	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
cis-1,2-Dichloroethene	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
cis-1,3-Dichloropropene	ND	*	1.6	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Dibromochloromethane	ND		3.3	0.44	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Dichlorodifluoromethane	ND		3.3	0.81	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Ethylbenzene	ND	*	3.3	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Hexachloro-1,3-butadiene	ND		4.9	0.99	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Methyl tert-butyl ether	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Methylene Chloride	0.98	J	25	0.39	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
m-Xylene & p-Xylene	ND		3.3	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Naphthalene	ND		16	3.0	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
o-Xylene	ND		3.3	0.43	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Styrene	ND	*	3.3	0.33	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Tetrachloroethene	ND	*	3.3	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Tetrahydrofuran	ND	*	160	34	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Toluene	ND	*	3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
trans-1,2-Dichloroethene	ND		3.3	0.66	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
trans-1,3-Dichloropropene	ND	*	16	2.3	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Trichloroethene	ND	*	3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Trichlorofluoromethane	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Vinyl acetate	ND		8.2	0.99	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1
Vinyl chloride	ND		3.3	0.49	ug/Kg	☼	07/07/16 16:42	07/08/16 23:06	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-15

Lab Sample ID: 580-60846-3

Date Collected: 07/06/16 09:20

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 64.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	124	X	81 - 121	07/07/16 16:42	07/08/16 23:06	1
4-Bromofluorobenzene (Surr)	94		79 - 120	07/07/16 16:42	07/08/16 23:06	1
Dibromofluoromethane (Surr)	113		78 - 118	07/07/16 16:42	07/08/16 23:06	1
Toluene-d8 (Surr)	104		79 - 119	07/07/16 16:42	07/08/16 23:06	1
Trifluorotoluene (Surr)	90		52 - 152	07/07/16 16:42	07/08/16 23:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	64.0		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	36.0		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-20

Lab Sample ID: 580-60846-4

Date Collected: 07/06/16 09:30

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 68.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,1,1,2-Tetrachloroethane	ND	F1 *	5.8	1.3	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,1,2-Trichloroethane	ND	F1 *	2.9	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,1,2-Trichlorotrifluoroethane	ND		4.4	0.75	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,1-Dichloroethane	ND	*	1.5	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,1-Dichloroethene	ND		7.3	0.73	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,2,4-Trichlorobenzene	ND	F1	2.9	0.58	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,2,4-Trimethylbenzene	ND	F1 *	2.9	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,2-Dibromoethane	ND	F1 *	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,2-Dichlorobenzene	ND	F1 *	2.9	0.45	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,2-Dichloroethane	ND	F1 *	1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,3,5-Trimethylbenzene	ND	F1 *	7.3	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,3-Dichlorobenzene	ND	F1 *	2.9	0.38	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
1,4-Dichlorobenzene	ND	F1 *	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
2-Butanone	ND	F1	58	13	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
2-Hexanone	ND	F1 *	29	5.7	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
4-Methyl-2-pentanone	ND	*	15	2.2	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Acetone	ND	*	22	3.5	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Benzene	ND	*	2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Bromodichloromethane	ND	*	1.5	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Bromoform	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Bromomethane	ND		1.5	0.30	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Carbon tetrachloride	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Chlorobenzene	ND	F1 *	2.9	0.58	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Chloroethane	ND		2.9	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Chloroform	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Chloromethane	ND		1.5	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
cis-1,2-Dichloroethene	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
cis-1,3-Dichloropropene	ND	F1 *	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Dibromochloromethane	ND		2.9	0.39	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Dichlorodifluoromethane	ND		2.9	0.71	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Ethylbenzene	ND	*	2.9	0.58	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Hexachloro-1,3-butadiene	ND	F1	4.4	0.87	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Methyl tert-butyl ether	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Methylene Chloride	ND		22	0.35	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
m-Xylene & p-Xylene	ND	F1	2.9	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Naphthalene	ND		15	2.6	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
o-Xylene	ND		2.9	0.38	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Styrene	ND	F1 *	2.9	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Tetrachloroethene	ND	F1 *	2.9	0.58	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Tetrahydrofuran	ND	*	150	30	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Toluene	ND	*	2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
trans-1,2-Dichloroethene	ND		2.9	0.58	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
trans-1,3-Dichloropropene	ND	F1 *	15	2.0	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Trichloroethene	ND	*	2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Trichlorofluoromethane	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Vinyl acetate	ND	F1	7.3	0.87	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1
Vinyl chloride	ND		2.9	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 12:44	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-20

Lab Sample ID: 580-60846-4

Date Collected: 07/06/16 09:30

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 68.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		81 - 121	07/07/16 16:42	07/12/16 12:44	1
4-Bromofluorobenzene (Surr)	99		79 - 120	07/07/16 16:42	07/12/16 12:44	1
Dibromofluoromethane (Surr)	101		78 - 118	07/07/16 16:42	07/12/16 12:44	1
Toluene-d8 (Surr)	104		79 - 119	07/07/16 16:42	07/12/16 12:44	1
Trifluorotoluene (Surr)	99		52 - 152	07/07/16 16:42	07/12/16 12:44	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.4		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	31.6		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-25

Lab Sample ID: 580-60846-5

Date Collected: 07/06/16 09:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 67.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,1,1,2-Tetrachloroethane	ND	*	6.2	1.4	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,1,2-Trichloroethane	ND	*	3.1	0.39	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,1,2-Trichlorotrifluoroethane	ND		4.6	0.80	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,1-Dichloroethane	ND	*	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,1-Dichloroethene	ND		7.7	0.77	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,2,4-Trichlorobenzene	ND		3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,2,4-Trimethylbenzene	ND	*	3.1	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,2-Dibromoethane	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,2-Dichlorobenzene	ND	*	3.1	0.48	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,2-Dichloroethane	ND	*	1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,3,5-Trimethylbenzene	ND	*	7.7	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,3-Dichlorobenzene	ND	*	3.1	0.40	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
1,4-Dichlorobenzene	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
2-Butanone	ND		62	14	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
2-Hexanone	ND	*	31	6.0	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
4-Methyl-2-pentanone	ND	*	15	2.3	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Acetone	ND	*	23	3.7	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Benzene	ND	*	3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Bromodichloromethane	ND	*	1.5	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Bromoform	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Bromomethane	ND		1.5	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Carbon tetrachloride	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Chlorobenzene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Chloroethane	ND		3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Chloroform	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Chloromethane	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
cis-1,2-Dichloroethene	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
cis-1,3-Dichloropropene	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Dibromochloromethane	ND		3.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Dichlorodifluoromethane	ND		3.1	0.76	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Ethylbenzene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Hexachloro-1,3-butadiene	ND		4.6	0.93	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Methyl tert-butyl ether	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Methylene Chloride	ND		23	0.37	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
m-Xylene & p-Xylene	ND		3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Naphthalene	ND		15	2.8	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
o-Xylene	ND		3.1	0.40	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Styrene	ND	*	3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Tetrachloroethene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Tetrahydrofuran	ND	*	150	32	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Toluene	ND	*	3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
trans-1,2-Dichloroethene	ND		3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
trans-1,3-Dichloropropene	ND	*	15	2.2	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Trichloroethene	ND	*	3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Trichlorofluoromethane	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Vinyl acetate	ND		7.7	0.93	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1
Vinyl chloride	ND		3.1	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 14:45	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-25

Lab Sample ID: 580-60846-5

Date Collected: 07/06/16 09:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 67.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/07/16 16:42	07/12/16 14:45	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/07/16 16:42	07/12/16 14:45	1
Dibromofluoromethane (Surr)	105		78 - 118	07/07/16 16:42	07/12/16 14:45	1
Toluene-d8 (Surr)	98		79 - 119	07/07/16 16:42	07/12/16 14:45	1
Trifluorotoluene (Surr)	98		52 - 152	07/07/16 16:42	07/12/16 14:45	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.5		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	32.5		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-30

Lab Sample ID: 580-60846-6

Date Collected: 07/06/16 09:38

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 71.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,1,1,2-Tetrachloroethane	ND	*	6.2	1.4	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,1,2-Trichloroethane	ND	*	3.1	0.39	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,1,2-Trichlorotrifluoroethane	ND		4.7	0.81	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,1-Dichloroethane	ND	*	1.6	0.30	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,1-Dichloroethene	ND		7.8	0.78	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,2,4-Trichlorobenzene	ND		3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,2,4-Trimethylbenzene	ND	*	3.1	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,2-Dibromoethane	ND	*	1.6	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,2-Dichlorobenzene	ND	*	3.1	0.48	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,2-Dichloroethane	ND	*	1.6	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,3,5-Trimethylbenzene	ND	*	7.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,3-Dichlorobenzene	ND	*	3.1	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
1,4-Dichlorobenzene	ND	*	1.6	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
2-Butanone	ND		62	14	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
2-Hexanone	ND	*	31	6.1	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
4-Methyl-2-pentanone	ND	*	16	2.3	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Acetone	ND	*	23	3.7	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Benzene	ND	*	3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Bromodichloromethane	ND	*	1.6	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Bromoform	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Bromomethane	ND		1.6	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Carbon tetrachloride	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Chlorobenzene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Chloroethane	ND		3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Chloroform	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Chloromethane	ND		1.6	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
cis-1,2-Dichloroethene	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
cis-1,3-Dichloropropene	ND	*	1.6	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Dibromochloromethane	ND		3.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Dichlorodifluoromethane	ND		3.1	0.76	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Ethylbenzene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Hexachloro-1,3-butadiene	ND		4.7	0.94	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Methyl tert-butyl ether	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Methylene Chloride	ND		23	0.37	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
m-Xylene & p-Xylene	ND		3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Naphthalene	ND		16	2.8	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
o-Xylene	ND		3.1	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Styrene	ND	*	3.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Tetrachloroethene	ND	*	3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Tetrahydrofuran	ND	*	160	32	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Toluene	ND	*	3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
trans-1,2-Dichloroethene	ND		3.1	0.62	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
trans-1,3-Dichloropropene	ND	*	16	2.2	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Trichloroethene	ND	*	3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Trichlorofluoromethane	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Vinyl acetate	ND		7.8	0.94	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1
Vinyl chloride	ND		3.1	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 15:12	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-30

Lab Sample ID: 580-60846-6

Date Collected: 07/06/16 09:38

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 71.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/07/16 16:42	07/12/16 15:12	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/07/16 16:42	07/12/16 15:12	1
Dibromofluoromethane (Surr)	106		78 - 118	07/07/16 16:42	07/12/16 15:12	1
Toluene-d8 (Surr)	101		79 - 119	07/07/16 16:42	07/12/16 15:12	1
Trifluorotoluene (Surr)	98		52 - 152	07/07/16 16:42	07/12/16 15:12	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71.7		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	28.3		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-35

Lab Sample ID: 580-60846-7

Date Collected: 07/06/16 09:40

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 85.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,1,1,2-Tetrachloroethane	ND	*	3.3	0.75	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,1,2-Trichloroethane	ND	*	1.7	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,1,2-Trichlorotrifluoroethane	ND		2.5	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,1-Dichloroethane	ND	*	0.83	0.16	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,1-Dichloroethene	ND		4.2	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,2,4-Trichlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,2,4-Trimethylbenzene	ND	*	1.7	0.13	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,2-Dibromoethane	ND	*	0.83	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,2-Dichlorobenzene	ND	*	1.7	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,2-Dichloroethane	ND	*	0.83	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,3,5-Trimethylbenzene	ND	*	4.2	0.14	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,3-Dichlorobenzene	ND	*	1.7	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
1,4-Dichlorobenzene	ND	*	0.83	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
2-Butanone	ND		33	7.4	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
2-Hexanone	ND	*	17	3.2	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
4-Methyl-2-pentanone	ND	*	8.3	1.2	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Acetone	ND	*	12	2.0	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Benzene	ND	*	1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Bromodichloromethane	ND	*	0.83	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Bromoform	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Bromomethane	ND		0.83	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Carbon tetrachloride	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Chlorobenzene	ND	*	1.7	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Chloroform	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Chloromethane	ND		0.83	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
cis-1,2-Dichloroethene	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
cis-1,3-Dichloropropene	ND	*	0.83	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Dibromochloromethane	ND		1.7	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Dichlorodifluoromethane	ND		1.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Ethylbenzene	ND	*	1.7	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Hexachloro-1,3-butadiene	ND		2.5	0.50	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Methyl tert-butyl ether	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Methylene Chloride	ND		12	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Naphthalene	ND		8.3	1.5	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Styrene	ND	*	1.7	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Tetrachloroethene	ND	*	1.7	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Tetrahydrofuran	ND	*	83	17	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Toluene	ND	*	1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
trans-1,2-Dichloroethene	ND		1.7	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
trans-1,3-Dichloropropene	ND	*	8.3	1.2	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Trichloroethene	ND	*	1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Trichlorofluoromethane	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Vinyl acetate	ND		4.2	0.50	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1
Vinyl chloride	ND		1.7	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 15:40	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-35

Date Collected: 07/06/16 09:40

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-7

Matrix: Solid

Percent Solids: 85.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		81 - 121	07/07/16 16:42	07/12/16 15:40	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/07/16 16:42	07/12/16 15:40	1
Dibromofluoromethane (Surr)	106		78 - 118	07/07/16 16:42	07/12/16 15:40	1
Toluene-d8 (Surr)	101		79 - 119	07/07/16 16:42	07/12/16 15:40	1
Trifluorotoluene (Surr)	97		52 - 152	07/07/16 16:42	07/12/16 15:40	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.1		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	14.9		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-40

Lab Sample ID: 580-60846-8

Date Collected: 07/06/16 10:30

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 89.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,1,1,2-Tetrachloroethane	ND	*	4.2	0.94	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,1,2-Trichloroethane	ND	*	2.1	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,1,2-Trichlorotrifluoroethane	ND		3.1	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,1-Dichloroethane	ND	*	1.0	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,1-Dichloroethene	ND		5.2	0.52	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,2,4-Trichlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,2,4-Trimethylbenzene	ND	*	2.1	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,2-Dibromoethane	ND	*	1.0	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,2-Dichlorobenzene	ND	*	2.1	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,2-Dichloroethane	ND	*	1.0	0.16	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,3,5-Trimethylbenzene	ND	*	5.2	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,3-Dichlorobenzene	ND	*	2.1	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
1,4-Dichlorobenzene	ND	*	1.0	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
2-Butanone	ND		42	9.3	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
2-Hexanone	ND	*	21	4.1	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
4-Methyl-2-pentanone	ND	*	10	1.6	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Acetone	ND	*	16	2.5	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Benzene	ND	*	2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Bromodichloromethane	ND	*	1.0	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Bromoform	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Bromomethane	ND		1.0	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Carbon tetrachloride	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Chlorobenzene	ND	*	2.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Chloroform	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Chloromethane	ND		1.0	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
cis-1,2-Dichloroethene	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
cis-1,3-Dichloropropene	ND	*	1.0	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Dibromochloromethane	ND		2.1	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Dichlorodifluoromethane	ND		2.1	0.51	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Ethylbenzene	ND	*	2.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Hexachloro-1,3-butadiene	ND		3.1	0.63	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Methyl tert-butyl ether	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Methylene Chloride	ND		16	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Naphthalene	ND		10	1.9	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Styrene	ND	*	2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Tetrachloroethene	ND	*	2.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Tetrahydrofuran	ND	*	100	22	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Toluene	ND	*	2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
trans-1,2-Dichloroethene	ND		2.1	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
trans-1,3-Dichloropropene	ND	*	10	1.5	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Trichloroethene	ND	*	2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Trichlorofluoromethane	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Vinyl acetate	ND		5.2	0.63	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1
Vinyl chloride	ND		2.1	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 16:07	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-40

Lab Sample ID: 580-60846-8

Date Collected: 07/06/16 10:30

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 89.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		81 - 121	07/07/16 16:42	07/12/16 16:07	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/07/16 16:42	07/12/16 16:07	1
Dibromofluoromethane (Surr)	107		78 - 118	07/07/16 16:42	07/12/16 16:07	1
Toluene-d8 (Surr)	98		79 - 119	07/07/16 16:42	07/12/16 16:07	1
Trifluorotoluene (Surr)	98		52 - 152	07/07/16 16:42	07/12/16 16:07	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.1		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	10.9		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-45

Lab Sample ID: 580-60846-9

Date Collected: 07/06/16 10:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,1,1,2-Tetrachloroethane	ND	*	4.3	0.96	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,1,2-Trichloroethane	ND	*	2.1	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,1-Dichloroethane	ND	*	1.1	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,1-Dichloroethene	ND		5.3	0.53	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,2,4-Trichlorobenzene	ND		2.1	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,2,4-Trimethylbenzene	ND	*	2.1	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,2-Dibromoethane	ND	*	1.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,2-Dichlorobenzene	ND	*	2.1	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,2-Dichloroethane	ND	*	1.1	0.16	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,3,5-Trimethylbenzene	ND	*	5.3	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,3-Dichlorobenzene	ND	*	2.1	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
1,4-Dichlorobenzene	ND	*	1.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
2-Butanone	ND		43	9.5	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
2-Hexanone	ND	*	21	4.2	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
4-Methyl-2-pentanone	ND	*	11	1.6	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Acetone	ND	*	16	2.6	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Benzene	ND	*	2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Bromodichloromethane	ND	*	1.1	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Bromoform	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Bromomethane	ND		1.1	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Carbon tetrachloride	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Chlorobenzene	ND	*	2.1	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Chloroform	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
cis-1,2-Dichloroethene	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
cis-1,3-Dichloropropene	ND	*	1.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Dibromochloromethane	ND		2.1	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Dichlorodifluoromethane	ND		2.1	0.52	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Ethylbenzene	ND	*	2.1	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Hexachloro-1,3-butadiene	ND		3.2	0.64	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Methyl tert-butyl ether	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Methylene Chloride	ND		16	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Naphthalene	ND		11	1.9	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
o-Xylene	ND		2.1	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Styrene	ND	*	2.1	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Tetrachloroethene	ND	*	2.1	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Tetrahydrofuran	ND	*	110	22	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Toluene	ND	*	2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
trans-1,2-Dichloroethene	ND		2.1	0.43	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
trans-1,3-Dichloropropene	ND	*	11	1.5	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Trichloroethene	ND	*	2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Trichlorofluoromethane	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Vinyl acetate	ND		5.3	0.64	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1
Vinyl chloride	ND		2.1	0.32	ug/Kg	☼	07/07/16 16:42	07/12/16 16:35	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-45

Lab Sample ID: 580-60846-9

Date Collected: 07/06/16 10:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		81 - 121	07/07/16 16:42	07/12/16 16:35	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/07/16 16:42	07/12/16 16:35	1
Dibromofluoromethane (Surr)	104		78 - 118	07/07/16 16:42	07/12/16 16:35	1
Toluene-d8 (Surr)	104		79 - 119	07/07/16 16:42	07/12/16 16:35	1
Trifluorotoluene (Surr)	100		52 - 152	07/07/16 16:42	07/12/16 16:35	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.2		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	15.8		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-05

Lab Sample ID: 580-60846-10

Date Collected: 07/06/16 14:50

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 83.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,1,1,2-Tetrachloroethane	ND	*	3.6	0.81	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,1,2-Trichloroethane	ND	*	1.8	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,1,2-Trichlorotrifluoroethane	ND		2.7	0.47	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,1-Dichloroethane	ND	*	0.90	0.17	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,1-Dichloroethene	ND		4.5	0.45	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,2,4-Trichlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,2,4-Trimethylbenzene	ND	*	1.8	0.14	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,2-Dibromoethane	ND	*	0.90	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,2-Dichlorobenzene	ND	*	1.8	0.28	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,2-Dichloroethane	ND	*	0.90	0.13	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,3,5-Trimethylbenzene	ND	*	4.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,3-Dichlorobenzene	ND	*	1.8	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
1,4-Dichlorobenzene	ND	*	0.90	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
2-Butanone	ND		36	8.0	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
2-Hexanone	ND	*	18	3.5	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
4-Methyl-2-pentanone	ND	*	9.0	1.3	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Acetone	ND	*	13	2.2	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Benzene	ND	*	1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Bromodichloromethane	ND	*	0.90	0.16	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Bromoform	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Bromomethane	ND		0.90	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Carbon tetrachloride	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Chlorobenzene	ND	*	1.8	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Chloroethane	ND		1.8	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Chloroform	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Chloromethane	ND		0.90	0.13	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
cis-1,2-Dichloroethene	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
cis-1,3-Dichloropropene	ND	*	0.90	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Dibromochloromethane	ND		1.8	0.24	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Dichlorodifluoromethane	ND		1.8	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Ethylbenzene	ND	*	1.8	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Hexachloro-1,3-butadiene	ND		2.7	0.54	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Methyl tert-butyl ether	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Methylene Chloride	ND		13	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
m-Xylene & p-Xylene	ND		1.8	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Naphthalene	ND		9.0	1.6	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
o-Xylene	ND		1.8	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Styrene	ND	*	1.8	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Tetrachloroethene	ND	*	1.8	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Tetrahydrofuran	ND	*	90	18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Toluene	ND	*	1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
trans-1,2-Dichloroethene	ND		1.8	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
trans-1,3-Dichloropropene	ND	*	9.0	1.3	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Trichloroethene	ND	*	1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Trichlorofluoromethane	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Vinyl acetate	ND		4.5	0.54	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1
Vinyl chloride	ND		1.8	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 17:03	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-05

Lab Sample ID: 580-60846-10

Date Collected: 07/06/16 14:50

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 83.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/07/16 16:42	07/12/16 17:03	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/07/16 16:42	07/12/16 17:03	1
Dibromofluoromethane (Surr)	107		78 - 118	07/07/16 16:42	07/12/16 17:03	1
Toluene-d8 (Surr)	99		79 - 119	07/07/16 16:42	07/12/16 17:03	1
Trifluorotoluene (Surr)	96		52 - 152	07/07/16 16:42	07/12/16 17:03	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.7		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	16.3		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-10

Lab Sample ID: 580-60846-11

Date Collected: 07/06/16 15:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 81.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,1,1,2-Tetrachloroethane	ND	*	3.1	0.69	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,1,2-Trichloroethane	ND	*	1.5	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,1,2-Trichlorotrifluoroethane	ND		2.3	0.40	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,1-Dichloroethane	ND	*	0.77	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,1-Dichloroethene	ND		3.8	0.38	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,2,4-Trichlorobenzene	ND		1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,2,4-Trimethylbenzene	ND	*	1.5	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,2-Dibromoethane	ND	*	0.77	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,2-Dichlorobenzene	ND	*	1.5	0.24	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,2-Dichloroethane	ND	*	0.77	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,3,5-Trimethylbenzene	ND	*	3.8	0.13	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,3-Dichlorobenzene	ND	*	1.5	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
1,4-Dichlorobenzene	ND	*	0.77	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
2-Butanone	ND		31	6.8	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
2-Hexanone	ND	*	15	3.0	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
4-Methyl-2-pentanone	ND	*	7.7	1.2	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Acetone	4.4	J *	12	1.8	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Benzene	ND	*	1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Bromodichloromethane	ND	*	0.77	0.14	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Bromoform	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Bromomethane	ND		0.77	0.16	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Carbon tetrachloride	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Chlorobenzene	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Chloroethane	ND		1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Chloroform	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Chloromethane	ND		0.77	0.11	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
cis-1,2-Dichloroethene	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
cis-1,3-Dichloropropene	ND	*	0.77	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Dibromochloromethane	ND		1.5	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Dichlorodifluoromethane	ND		1.5	0.38	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Ethylbenzene	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Hexachloro-1,3-butadiene	ND		2.3	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Methyl tert-butyl ether	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Methylene Chloride	1.2	J	12	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
m-Xylene & p-Xylene	ND		1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Naphthalene	ND		7.7	1.4	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
o-Xylene	ND		1.5	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Styrene	ND	*	1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Tetrachloroethene	ND	*	1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Tetrahydrofuran	ND	*	77	16	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Toluene	0.52	J *	1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
trans-1,2-Dichloroethene	ND		1.5	0.31	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
trans-1,3-Dichloropropene	ND	*	7.7	1.1	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Trichloroethene	ND	*	1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Trichlorofluoromethane	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Vinyl acetate	ND		3.8	0.46	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1
Vinyl chloride	ND		1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:30	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-10

Lab Sample ID: 580-60846-11

Date Collected: 07/06/16 15:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 81.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		81 - 121	07/07/16 16:42	07/12/16 17:30	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/07/16 16:42	07/12/16 17:30	1
Dibromofluoromethane (Surr)	111		78 - 118	07/07/16 16:42	07/12/16 17:30	1
Toluene-d8 (Surr)	102		79 - 119	07/07/16 16:42	07/12/16 17:30	1
Trifluorotoluene (Surr)	97		52 - 152	07/07/16 16:42	07/12/16 17:30	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.9		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	18.1		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-15

Lab Sample ID: 580-60846-12

Date Collected: 07/06/16 15:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,1,1,2-Tetrachloroethane	ND	*	2.9	0.66	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,1,2-Trichloroethane	ND	*	1.5	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,1,2-Trichlorotrifluoroethane	ND		2.2	0.38	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,1-Dichloroethane	ND	*	0.73	0.14	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,1-Dichloroethene	ND		3.7	0.37	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,2,4-Trichlorobenzene	ND		1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,2,4-Trimethylbenzene	ND	*	1.5	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,2-Dibromoethane	ND	*	0.73	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,2-Dichlorobenzene	ND	*	1.5	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,2-Dichloroethane	ND	*	0.73	0.11	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,3,5-Trimethylbenzene	ND	*	3.7	0.12	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,3-Dichlorobenzene	ND	*	1.5	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
1,4-Dichlorobenzene	ND	*	0.73	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
2-Butanone	ND		29	6.5	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
2-Hexanone	ND	*	15	2.9	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
4-Methyl-2-pentanone	ND	*	7.3	1.1	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Acetone	ND	*	11	1.8	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Benzene	ND	*	1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Bromodichloromethane	ND	*	0.73	0.13	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Bromoform	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Bromomethane	ND		0.73	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Carbon tetrachloride	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Chlorobenzene	ND	*	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Chloroethane	ND		1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Chloroform	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Chloromethane	ND		0.73	0.10	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
cis-1,2-Dichloroethene	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
cis-1,3-Dichloropropene	ND	*	0.73	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Dibromochloromethane	ND		1.5	0.20	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Dichlorodifluoromethane	ND		1.5	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Ethylbenzene	ND	*	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Hexachloro-1,3-butadiene	ND		2.2	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Methyl tert-butyl ether	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Methylene Chloride	ND		11	0.18	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
m-Xylene & p-Xylene	ND		1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Naphthalene	ND		7.3	1.3	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
o-Xylene	ND		1.5	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Styrene	ND	*	1.5	0.15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Tetrachloroethene	ND	*	1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Tetrahydrofuran	ND	*	73	15	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Toluene	ND	*	1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
trans-1,2-Dichloroethene	ND		1.5	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
trans-1,3-Dichloropropene	ND	*	7.3	1.0	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Trichloroethene	ND	*	1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Trichlorofluoromethane	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Vinyl acetate	ND		3.7	0.44	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1
Vinyl chloride	ND		1.5	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 17:58	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-15

Lab Sample ID: 580-60846-12

Date Collected: 07/06/16 15:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		81 - 121	07/07/16 16:42	07/12/16 17:58	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/07/16 16:42	07/12/16 17:58	1
Dibromofluoromethane (Surr)	107		78 - 118	07/07/16 16:42	07/12/16 17:58	1
Toluene-d8 (Surr)	99		79 - 119	07/07/16 16:42	07/12/16 17:58	1
Trifluorotoluene (Surr)	95		52 - 152	07/07/16 16:42	07/12/16 17:58	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.7		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	15.3		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-20

Lab Sample ID: 580-60846-13

Date Collected: 07/06/16 15:20

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 67.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,1,1,2-Tetrachloroethane	ND	*	5.5	1.2	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,1,2-Trichloroethane	ND	*	2.7	0.34	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,1,2-Trichlorotrifluoroethane	ND		4.1	0.71	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,1-Dichloroethane	ND	*	1.4	0.26	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,1-Dichloroethene	ND		6.8	0.68	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,2,4-Trichlorobenzene	ND		2.7	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,2,4-Trimethylbenzene	ND	*	2.7	0.22	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,2-Dibromoethane	ND	*	1.4	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,2-Dichlorobenzene	ND	*	2.7	0.42	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,2-Dichloroethane	ND	*	1.4	0.21	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,3,5-Trimethylbenzene	ND	*	6.8	0.23	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,3-Dichlorobenzene	ND	*	2.7	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
1,4-Dichlorobenzene	ND	*	1.4	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
2-Butanone	ND		55	12	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
2-Hexanone	ND	*	27	5.3	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
4-Methyl-2-pentanone	ND	*	14	2.1	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Acetone	ND	*	21	3.3	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Benzene	ND	*	2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Bromodichloromethane	ND	*	1.4	0.25	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Bromoform	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Bromomethane	ND		1.4	0.29	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Carbon tetrachloride	5.4		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Chlorobenzene	ND	*	2.7	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Chloroethane	ND		2.7	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Chloroform	6.3		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Chloromethane	ND		1.4	0.19	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
cis-1,2-Dichloroethene	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
cis-1,3-Dichloropropene	ND	*	1.4	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Dibromochloromethane	ND		2.7	0.37	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Dichlorodifluoromethane	ND		2.7	0.67	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Ethylbenzene	ND	*	2.7	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Hexachloro-1,3-butadiene	ND		4.1	0.82	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Methyl tert-butyl ether	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Methylene Chloride	1.6 J		21	0.33	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
m-Xylene & p-Xylene	ND		2.7	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Naphthalene	ND		14	2.5	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
o-Xylene	ND		2.7	0.36	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Styrene	ND	*	2.7	0.27	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Tetrachloroethene	ND	*	2.7	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Tetrahydrofuran	ND	*	140	28	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Toluene	ND	*	2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
trans-1,2-Dichloroethene	ND		2.7	0.55	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
trans-1,3-Dichloropropene	ND	*	14	1.9	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Trichloroethene	ND	*	2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Trichlorofluoromethane	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Vinyl acetate	ND		6.8	0.82	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1
Vinyl chloride	ND		2.7	0.41	ug/Kg	☼	07/07/16 16:42	07/12/16 18:26	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-20

Lab Sample ID: 580-60846-13

Date Collected: 07/06/16 15:20

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 67.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		81 - 121	07/07/16 16:42	07/12/16 18:26	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/07/16 16:42	07/12/16 18:26	1
Dibromofluoromethane (Surr)	107		78 - 118	07/07/16 16:42	07/12/16 18:26	1
Toluene-d8 (Surr)	99		79 - 119	07/07/16 16:42	07/12/16 18:26	1
Trifluorotoluene (Surr)	99		52 - 152	07/07/16 16:42	07/12/16 18:26	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.0		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	33.0		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-25

Lab Sample ID: 580-60846-14

Date Collected: 07/06/16 15:25

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 72.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,1,1,2-Tetrachloroethane	ND	*	4.7	1.1	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,1,2-Trichloroethane	ND	*	2.3	0.29	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,1,2-Trichlorotrifluoroethane	ND		3.5	0.61	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,1-Dichloroethane	ND	*	1.2	0.22	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,1-Dichloroethene	ND		5.8	0.58	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,2,4-Trichlorobenzene	0.55	J*	2.3	0.47	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,2,4-Trimethylbenzene	ND	*	2.3	0.19	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,2-Dibromoethane	ND	*	1.2	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,2-Dichlorobenzene	ND	*	2.3	0.36	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,2-Dichloroethane	ND	*	1.2	0.18	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,3,5-Trimethylbenzene	ND	*	5.8	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,3-Dichlorobenzene	ND	*	2.3	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
1,4-Dichlorobenzene	ND	*	1.2	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
2-Butanone	ND		47	10	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
2-Hexanone	ND	*	23	4.6	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
4-Methyl-2-pentanone	ND	*	12	1.8	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Acetone	ND	*	18	2.8	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Benzene	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Bromodichloromethane	ND	*	1.2	0.21	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Bromoform	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Bromomethane	ND		1.2	0.25	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Carbon tetrachloride	6.2	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Chlorobenzene	ND	*	2.3	0.47	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Chloroethane	ND	*	2.3	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Chloroform	7.2		2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Chloromethane	ND	*	1.2	0.16	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
cis-1,2-Dichloroethene	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
cis-1,3-Dichloropropene	ND	*	1.2	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Dibromochloromethane	ND		2.3	0.32	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Dichlorodifluoromethane	ND		2.3	0.57	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Ethylbenzene	ND	*	2.3	0.47	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Hexachloro-1,3-butadiene	ND	*	3.5	0.70	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Methyl tert-butyl ether	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Methylene Chloride	4.5	J*	18	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
m-Xylene & p-Xylene	ND	*	2.3	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Naphthalene	ND	*	12	2.1	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
o-Xylene	ND	*	2.3	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Styrene	ND	*	2.3	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Tetrachloroethene	ND	*	2.3	0.47	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Tetrahydrofuran	ND	*	120	24	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Toluene	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
trans-1,2-Dichloroethene	ND	*	2.3	0.47	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
trans-1,3-Dichloropropene	ND	*	12	1.6	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Trichloroethene	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Trichlorofluoromethane	ND		2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Vinyl acetate	ND		5.8	0.70	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1
Vinyl chloride	ND	*	2.3	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 17:34	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-25

Lab Sample ID: 580-60846-14

Date Collected: 07/06/16 15:25

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 72.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	127	X	81 - 121	07/08/16 13:50	07/08/16 17:34	1
4-Bromofluorobenzene (Surr)	94		79 - 120	07/08/16 13:50	07/08/16 17:34	1
Dibromofluoromethane (Surr)	115		78 - 118	07/08/16 13:50	07/08/16 17:34	1
Toluene-d8 (Surr)	103		79 - 119	07/08/16 13:50	07/08/16 17:34	1
Trifluorotoluene (Surr)	90		52 - 152	07/08/16 13:50	07/08/16 17:34	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	72.7		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	27.3		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-30

Lab Sample ID: 580-60846-15

Date Collected: 07/06/16 15:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,1,1,2-Tetrachloroethane	ND	*	5.5	1.2	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,1,2-Trichloroethane	ND	*	2.8	0.35	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,1,2-Trichlorotrifluoroethane	ND		4.2	0.72	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,1-Dichloroethane	ND	*	1.4	0.26	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,1-Dichloroethene	ND		6.9	0.69	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,2,4-Trichlorobenzene	ND	*	2.8	0.55	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,2,4-Trimethylbenzene	ND	*	2.8	0.22	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,2-Dibromoethane	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,2-Dichlorobenzene	ND	*	2.8	0.43	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,2-Dichloroethane	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,3,5-Trimethylbenzene	ND	*	6.9	0.24	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,3-Dichlorobenzene	ND	*	2.8	0.36	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
1,4-Dichlorobenzene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
2-Butanone	ND		55	12	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
2-Hexanone	ND	*	28	5.4	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
4-Methyl-2-pentanone	ND	*	14	2.1	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Acetone	5.6	J *	21	3.3	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Benzene	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Bromodichloromethane	ND	*	1.4	0.25	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Bromoform	0.42	J *	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Bromomethane	ND		1.4	0.29	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Carbon tetrachloride	10	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Chlorobenzene	ND	*	2.8	0.55	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Chloroethane	ND	*	2.8	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Chloroform	8.8		2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Chloromethane	ND	*	1.4	0.19	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
cis-1,2-Dichloroethene	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
cis-1,3-Dichloropropene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Dibromochloromethane	ND		2.8	0.37	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Dichlorodifluoromethane	ND		2.8	0.68	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Ethylbenzene	ND	*	2.8	0.55	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Hexachloro-1,3-butadiene	ND	*	4.2	0.83	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Methyl tert-butyl ether	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Methylene Chloride	3.9	J *	21	0.33	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
m-Xylene & p-Xylene	ND	*	2.8	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Naphthalene	ND	*	14	2.5	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
o-Xylene	ND	*	2.8	0.36	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Styrene	ND	*	2.8	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Tetrachloroethene	ND	*	2.8	0.55	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Tetrahydrofuran	ND	*	140	28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Toluene	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
trans-1,2-Dichloroethene	ND	*	2.8	0.55	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
trans-1,3-Dichloropropene	ND	*	14	1.9	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Trichloroethene	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Trichlorofluoromethane	ND		2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Vinyl acetate	ND		6.9	0.83	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1
Vinyl chloride	ND	*	2.8	0.42	ug/Kg	☼	07/08/16 13:50	07/08/16 18:02	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-30

Lab Sample ID: 580-60846-15

Date Collected: 07/06/16 15:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	133	X	81 - 121	07/08/16 13:50	07/08/16 18:02	1
4-Bromofluorobenzene (Surr)	95		79 - 120	07/08/16 13:50	07/08/16 18:02	1
Dibromofluoromethane (Surr)	115		78 - 118	07/08/16 13:50	07/08/16 18:02	1
Toluene-d8 (Surr)	102		79 - 119	07/08/16 13:50	07/08/16 18:02	1
Trifluorotoluene (Surr)	87		52 - 152	07/08/16 13:50	07/08/16 18:02	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	65.4		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	34.6		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-35

Lab Sample ID: 580-60846-16

Date Collected: 07/06/16 15:40

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,1,1,2-Tetrachloroethane	ND	*	5.3	1.2	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,1,2-Trichloroethane	ND	*	2.7	0.33	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,1,2-Trichlorotrifluoroethane	ND		4.0	0.69	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,1-Dichloroethane	ND	*	1.3	0.25	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,1-Dichloroethene	ND		6.6	0.66	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,2,4-Trichlorobenzene	ND	*	2.7	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,2,4-Trimethylbenzene	ND	*	2.7	0.21	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,2-Dibromoethane	ND	*	1.3	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,2-Dichlorobenzene	ND	*	2.7	0.41	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,2-Dichloroethane	ND	*	1.3	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,3,5-Trimethylbenzene	ND	*	6.6	0.23	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,3-Dichlorobenzene	ND	*	2.7	0.34	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
1,4-Dichlorobenzene	ND	*	1.3	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
2-Butanone	ND		53	12	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
2-Hexanone	ND	*	27	5.2	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
4-Methyl-2-pentanone	ND	*	13	2.0	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Acetone	ND	*	20	3.2	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Benzene	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Bromodichloromethane	ND	*	1.3	0.24	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Bromoform	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Bromomethane	ND		1.3	0.28	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Carbon tetrachloride	14	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Chlorobenzene	ND	*	2.7	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Chloroethane	ND	*	2.7	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Chloroform	9.1		2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Chloromethane	ND	*	1.3	0.19	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
cis-1,2-Dichloroethene	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
cis-1,3-Dichloropropene	ND	*	1.3	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Dibromochloromethane	ND		2.7	0.36	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Dichlorodifluoromethane	ND		2.7	0.65	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Ethylbenzene	ND	*	2.7	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Hexachloro-1,3-butadiene	ND	*	4.0	0.80	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Methyl tert-butyl ether	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Methylene Chloride	2.2	J*	20	0.32	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
m-Xylene & p-Xylene	ND	*	2.7	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Naphthalene	ND	*	13	2.4	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
o-Xylene	ND	*	2.7	0.34	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Styrene	ND	*	2.7	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Tetrachloroethene	ND	*	2.7	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Tetrahydrofuran	ND	*	130	27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Toluene	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
trans-1,2-Dichloroethene	ND	*	2.7	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
trans-1,3-Dichloropropene	ND	*	13	1.9	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Trichloroethene	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Trichlorofluoromethane	ND		2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Vinyl acetate	ND		6.6	0.80	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1
Vinyl chloride	ND	*	2.7	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:30	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-35

Lab Sample ID: 580-60846-16

Date Collected: 07/06/16 15:40

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129	X	81 - 121	07/08/16 13:50	07/08/16 18:30	1
4-Bromofluorobenzene (Surr)	94		79 - 120	07/08/16 13:50	07/08/16 18:30	1
Dibromofluoromethane (Surr)	115		78 - 118	07/08/16 13:50	07/08/16 18:30	1
Toluene-d8 (Surr)	102		79 - 119	07/08/16 13:50	07/08/16 18:30	1
Trifluorotoluene (Surr)	89		52 - 152	07/08/16 13:50	07/08/16 18:30	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	65.0		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	35.0		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-39

Lab Sample ID: 580-60846-17

Date Collected: 07/06/16 16:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 71.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,1,1,2-Tetrachloroethane	ND	*	4.0	0.91	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,1,2-Trichloroethane	ND	*	2.0	0.25	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.53	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,1-Dichloroethane	ND	*	1.0	0.19	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,2,4-Trichlorobenzene	ND	*	2.0	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,2,4-Trimethylbenzene	ND	*	2.0	0.16	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,2-Dibromoethane	ND	*	1.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,2-Dichlorobenzene	ND	*	2.0	0.31	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,2-Dichloroethane	ND	*	1.0	0.15	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,3,5-Trimethylbenzene	ND	*	5.0	0.17	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,3-Dichlorobenzene	ND	*	2.0	0.26	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
1,4-Dichlorobenzene	ND	*	1.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
2-Butanone	ND		40	9.0	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
2-Hexanone	ND	*	20	3.9	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
4-Methyl-2-pentanone	ND	*	10	1.5	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Acetone	7.4	J *	15	2.4	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Benzene	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Bromodichloromethane	ND	*	1.0	0.18	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Bromoform	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Bromomethane	ND		1.0	0.21	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Carbon tetrachloride	17	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Chlorobenzene	ND	*	2.0	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Chloroethane	ND	*	2.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Chloroform	10		2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Chloromethane	ND	*	1.0	0.14	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
cis-1,2-Dichloroethene	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
cis-1,3-Dichloropropene	ND	*	1.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Ethylbenzene	ND	*	2.0	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Hexachloro-1,3-butadiene	ND	*	3.0	0.61	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Methyl tert-butyl ether	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Methylene Chloride	6.9	J *	15	0.24	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
m-Xylene & p-Xylene	ND	*	2.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Naphthalene	ND	*	10	1.8	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
o-Xylene	ND	*	2.0	0.26	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Styrene	ND	*	2.0	0.20	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Tetrachloroethene	ND	*	2.0	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Tetrahydrofuran	ND	*	100	21	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Toluene	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
trans-1,2-Dichloroethene	ND	*	2.0	0.40	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
trans-1,3-Dichloropropene	ND	*	10	1.4	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Trichloroethene	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Vinyl acetate	ND		5.0	0.61	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1
Vinyl chloride	ND	*	2.0	0.30	ug/Kg	☼	07/08/16 13:50	07/08/16 18:57	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-39

Lab Sample ID: 580-60846-17

Date Collected: 07/06/16 16:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 71.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125	X	81 - 121	07/08/16 13:50	07/08/16 18:57	1
4-Bromofluorobenzene (Surr)	93		79 - 120	07/08/16 13:50	07/08/16 18:57	1
Dibromofluoromethane (Surr)	114		78 - 118	07/08/16 13:50	07/08/16 18:57	1
Toluene-d8 (Surr)	102		79 - 119	07/08/16 13:50	07/08/16 18:57	1
Trifluorotoluene (Surr)	88		52 - 152	07/08/16 13:50	07/08/16 18:57	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71.9		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	28.1		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: FD-SS-070616

Lab Sample ID: 580-60846-18

Date Collected: 07/06/16 08:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 90.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,1,1,2-Tetrachloroethane	ND	*	2.8	0.63	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,1,2-Trichloroethane	ND	*	1.4	0.18	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,1,2-Trichlorotrifluoroethane	ND		2.1	0.36	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,1-Dichloroethane	ND	*	0.70	0.13	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,1-Dichloroethene	ND		3.5	0.35	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,2,4-Trichlorobenzene	0.36	J *	1.4	0.28	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,2,4-Trimethylbenzene	ND	*	1.4	0.11	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,2-Dibromoethane	ND	*	0.70	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,2-Dichlorobenzene	ND	*	1.4	0.22	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,2-Dichloroethane	ND	*	0.70	0.11	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,3,5-Trimethylbenzene	ND	*	3.5	0.12	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,3-Dichlorobenzene	ND	*	1.4	0.18	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
1,4-Dichlorobenzene	ND	*	0.70	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
2-Butanone	ND		28	6.2	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
2-Hexanone	ND	*	14	2.7	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
4-Methyl-2-pentanone	ND	*	7.0	1.1	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Acetone	ND	*	11	1.7	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Benzene	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Bromodichloromethane	ND	*	0.70	0.13	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Bromoform	0.21	J *	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Bromomethane	ND		0.70	0.15	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Carbon tetrachloride	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Chlorobenzene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Chloroethane	ND	*	1.4	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Chloroform	ND		1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Chloromethane	ND	*	0.70	0.098	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
cis-1,2-Dichloroethene	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
cis-1,3-Dichloropropene	ND	*	0.70	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Dibromochloromethane	ND		1.4	0.19	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Dichlorodifluoromethane	ND		1.4	0.34	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Ethylbenzene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Hexachloro-1,3-butadiene	ND	*	2.1	0.42	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Methyl tert-butyl ether	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Methylene Chloride	0.81	J *	11	0.17	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
m-Xylene & p-Xylene	ND	*	1.4	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Naphthalene	ND	*	7.0	1.3	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
o-Xylene	ND	*	1.4	0.18	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Styrene	ND	*	1.4	0.14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Tetrachloroethene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Tetrahydrofuran	ND	*	70	14	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Toluene	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
trans-1,2-Dichloroethene	ND	*	1.4	0.28	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
trans-1,3-Dichloropropene	ND	*	7.0	0.98	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Trichloroethene	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Trichlorofluoromethane	ND		1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Vinyl acetate	ND		3.5	0.42	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1
Vinyl chloride	ND	*	1.4	0.21	ug/Kg	☼	07/08/16 07:59	07/08/16 17:07	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: FD-SS-070616

Lab Sample ID: 580-60846-18

Date Collected: 07/06/16 08:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 90.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129	X	81 - 121	07/08/16 07:59	07/08/16 17:07	1
4-Bromofluorobenzene (Surr)	95		79 - 120	07/08/16 07:59	07/08/16 17:07	1
Dibromofluoromethane (Surr)	116		78 - 118	07/08/16 07:59	07/08/16 17:07	1
Toluene-d8 (Surr)	103		79 - 119	07/08/16 07:59	07/08/16 17:07	1
Trifluorotoluene (Surr)	88		52 - 152	07/08/16 07:59	07/08/16 17:07	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.8		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	9.2		0.1	0.1 %			07/08/16 12:53	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: FD2-SS-070616

Lab Sample ID: 580-60846-19

Date Collected: 07/06/16 17:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 66.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,1,1,2-Tetrachloroethane	ND	*	4.3	0.97	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,1,2-Trichloroethane	ND	*	2.2	0.27	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.56	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,1-Dichloroethane	ND	*	1.1	0.20	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,1-Dichloroethene	ND		5.4	0.54	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,2,4-Trichlorobenzene	0.72	J *	2.2	0.43	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,2,4-Trimethylbenzene	ND	*	2.2	0.17	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,2-Dibromoethane	ND	*	1.1	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,2-Dichlorobenzene	ND	*	2.2	0.33	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,2-Dichloroethane	ND	*	1.1	0.16	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,3,5-Trimethylbenzene	ND	*	5.4	0.18	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,3-Dichlorobenzene	ND	*	2.2	0.28	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
1,4-Dichlorobenzene	ND	*	1.1	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
2-Butanone	ND		43	9.6	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
2-Hexanone	ND	*	22	4.2	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
4-Methyl-2-pentanone	ND	*	11	1.6	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Acetone	ND	*	16	2.6	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Benzene	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Bromodichloromethane	ND	*	1.1	0.19	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Bromoform	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Bromomethane	ND		1.1	0.23	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Carbon tetrachloride	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Chlorobenzene	ND	*	2.2	0.43	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Chloroethane	ND	*	2.2	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Chloroform	0.53	J	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Chloromethane	ND	*	1.1	0.15	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
cis-1,2-Dichloroethene	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
cis-1,3-Dichloropropene	ND	*	1.1	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Dibromochloromethane	ND		2.2	0.29	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Dichlorodifluoromethane	ND		2.2	0.53	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Ethylbenzene	ND	*	2.2	0.43	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Hexachloro-1,3-butadiene	ND	*	3.2	0.65	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Methyl tert-butyl ether	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Methylene Chloride	ND	*	16	0.26	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
m-Xylene & p-Xylene	ND	*	2.2	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Naphthalene	2.0	J *	11	1.9	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
o-Xylene	ND	*	2.2	0.28	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Styrene	ND	*	2.2	0.22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Tetrachloroethene	ND	*	2.2	0.43	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Tetrahydrofuran	ND	*	110	22	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Toluene	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
trans-1,2-Dichloroethene	ND	*	2.2	0.43	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
trans-1,3-Dichloropropene	ND	*	11	1.5	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Trichloroethene	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Trichlorofluoromethane	ND		2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Vinyl acetate	ND		5.4	0.65	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1
Vinyl chloride	ND	*	2.2	0.32	ug/Kg	☼	07/08/16 13:49	07/08/16 16:39	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: FD2-SS-070616

Lab Sample ID: 580-60846-19

Date Collected: 07/06/16 17:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 66.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122	X	81 - 121	07/08/16 13:49	07/08/16 16:39	1
4-Bromofluorobenzene (Surr)	96		79 - 120	07/08/16 13:49	07/08/16 16:39	1
Dibromofluoromethane (Surr)	115		78 - 118	07/08/16 13:49	07/08/16 16:39	1
Toluene-d8 (Surr)	104		79 - 119	07/08/16 13:49	07/08/16 16:39	1
Trifluorotoluene (Surr)	91		52 - 152	07/08/16 13:49	07/08/16 16:39	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	66.6		0.1	0.1 %			07/08/16 12:53	1
Percent Moisture	33.4		0.1	0.1 %			07/08/16 12:53	1

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-221805/1-A

Matrix: Solid

Analysis Batch: 221931

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 221805

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
2-Butanone	ND		40	8.9	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
2-Hexanone	ND		20	3.9	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Acetone	ND		15	2.4	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Benzene	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Bromoform	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Chloroform	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Naphthalene	ND		10	1.8	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Styrene	ND		2.0	0.20	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Toluene	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/07/16 16:42	07/08/16 21:16	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/07/16 16:42	07/08/16 21:16	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	125	X	81 - 121	07/07/16 16:42	07/08/16 21:16	1
4-Bromofluorobenzene (Surr)	93		79 - 120	07/07/16 16:42	07/08/16 21:16	1
Dibromofluoromethane (Surr)	116		78 - 118	07/07/16 16:42	07/08/16 21:16	1
Toluene-d8 (Surr)	104		79 - 119	07/07/16 16:42	07/08/16 21:16	1
Trifluorotoluene (Surr)	91		52 - 152	07/07/16 16:42	07/08/16 21:16	1

Lab Sample ID: LCS 580-221805/2-A
Matrix: Solid
Analysis Batch: 221931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221805

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	20.1	23.7		ug/Kg		118	63 - 129
1,1,2,2-Tetrachloroethane	20.0	30.1	*	ug/Kg		150	65 - 125
1,1,2-Trichloroethane	20.1	25.7	*	ug/Kg		128	69 - 117
1,1,2-Trichlorotrifluoroethane	20.2	21.9		ug/Kg		109	57 - 127
1,1-Dichloroethane	20.0	27.3	*	ug/Kg		136	70 - 128
1,1-Dichloroethane	20.2	23.2		ug/Kg		115	58 - 123
1,2,4-Trichlorobenzene	20.0	25.4		ug/Kg		127	61 - 130
1,2,4-Trimethylbenzene	20.0	28.9	*	ug/Kg		144	61 - 124
1,2-Dibromoethane	20.0	26.2	*	ug/Kg		131	69 - 119
1,2-Dichlorobenzene	20.0	28.4	*	ug/Kg		142	69 - 119
1,2-Dichloroethane	20.0	26.2	*	ug/Kg		131	71 - 121
1,3,5-Trimethylbenzene	20.0	29.3	*	ug/Kg		146	64 - 125
1,3-Dichlorobenzene	20.0	27.7	*	ug/Kg		138	70 - 119
1,4-Dichlorobenzene	20.1	26.4	*	ug/Kg		132	71 - 117
2-Butanone	100	123		ug/Kg		123	44 - 141
2-Hexanone	100	149	*	ug/Kg		149	56 - 134
4-Methyl-2-pentanone	100	157	*	ug/Kg		157	58 - 135
Acetone	100	144	*	ug/Kg		144	53 - 134
Benzene	20.1	24.6	*	ug/Kg		123	70 - 118
Bromodichloromethane	20.1	24.3	*	ug/Kg		121	75 - 119
Bromoform	20.1	24.4		ug/Kg		121	50 - 124
Bromomethane	20.0	21.7		ug/Kg		109	41 - 148
Carbon tetrachloride	20.0	23.5		ug/Kg		117	67 - 126
Chlorobenzene	20.1	25.8	*	ug/Kg		128	68 - 120
Chloroethane	20.0	28.2		ug/Kg		141	48 - 142
Chloroform	20.0	24.1		ug/Kg		120	72 - 125
Chloromethane	20.0	26.7		ug/Kg		134	46 - 136
cis-1,2-Dichloroethene	20.0	23.8		ug/Kg		119	70 - 119
cis-1,3-Dichloropropene	20.1	26.9	*	ug/Kg		134	69 - 129
Dibromochloromethane	20.0	25.3		ug/Kg		127	64 - 129
Dichlorodifluoromethane	20.0	19.5		ug/Kg		97	38 - 140
Ethylbenzene	20.1	24.6	*	ug/Kg		123	66 - 119
Hexachloro-1,3-butadiene	20.0	25.5		ug/Kg		128	58 - 128
Methyl tert-butyl ether	20.0	26.4		ug/Kg		132	58 - 134
Methylene Chloride	20.1	24.0		ug/Kg		119	57 - 129
m-Xylene & p-Xylene	20.0	24.6		ug/Kg		123	69 - 126
Naphthalene	20.0	28.0		ug/Kg		140	45 - 141
o-Xylene	20.0	25.2		ug/Kg		126	66 - 127
Styrene	20.0	25.3	*	ug/Kg		126	68 - 120
Tetrachloroethene	20.1	28.6	*	ug/Kg		143	63 - 123
Tetrahydrofuran	40.0	64.9	J *	ug/Kg		162	49 - 144
Toluene	20.0	25.0	*	ug/Kg		125	67 - 119
trans-1,2-Dichloroethene	20.0	23.9		ug/Kg		119	63 - 122

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-221805/2-A
Matrix: Solid
Analysis Batch: 221931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221805

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
trans-1,3-Dichloropropene	20.0	26.6	*	ug/Kg		133	65 - 129
Trichloroethene	20.0	23.9	*	ug/Kg		119	68 - 118
Trichlorofluoromethane	20.0	20.0		ug/Kg		100	59 - 137
Vinyl acetate	50.0	61.2		ug/Kg		122	52 - 150
Vinyl chloride	20.0	23.8		ug/Kg		119	43 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	125	X	81 - 121
4-Bromofluorobenzene (Surr)	90		79 - 120
Dibromofluoromethane (Surr)	114		78 - 118
Toluene-d8 (Surr)	102		79 - 119
Trifluorotoluene (Surr)	91		52 - 152

Lab Sample ID: 580-60846-4 MS
Matrix: Solid
Analysis Batch: 222135

Client Sample ID: MW1-SS-20
Prep Type: Total/NA
Prep Batch: 221805

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	ND		27.3	21.4		ug/Kg	☼	78	63 - 129
1,1,2,2-Tetrachloroethane	ND	F1 *	27.2	16.3	F1	ug/Kg	☼	60	65 - 125
1,1,2-Trichloroethane	ND	F1 *	27.2	18.5	F1	ug/Kg	☼	68	69 - 117
1,1,2-Trichlorotrifluoroethane	ND		27.4	19.2		ug/Kg	☼	70	57 - 127
1,1-Dichloroethane	ND	*	27.2	21.2		ug/Kg	☼	78	70 - 128
1,1-Dichloroethene	ND		27.4	20.7		ug/Kg	☼	76	58 - 123
1,2,4-Trichlorobenzene	ND	F1	27.2	8.99	F1	ug/Kg	☼	33	61 - 130
1,2,4-Trimethylbenzene	ND	F1 *	27.2	15.2	F1	ug/Kg	☼	56	61 - 124
1,2-Dibromoethane	ND	F1 *	27.2	17.8	F1	ug/Kg	☼	66	69 - 119
1,2-Dichlorobenzene	ND	F1 *	27.2	15.3	F1	ug/Kg	☼	56	69 - 119
1,2-Dichloroethane	ND	F1 *	27.2	18.4	F1	ug/Kg	☼	68	71 - 121
1,3,5-Trimethylbenzene	ND	F1 *	27.2	16.1	F1	ug/Kg	☼	59	64 - 125
1,3-Dichlorobenzene	ND	F1 *	27.2	13.8	F1	ug/Kg	☼	51	70 - 119
1,4-Dichlorobenzene	ND	F1 *	27.2	12.8	F1	ug/Kg	☼	47	71 - 117
2-Butanone	ND	F1	136	43.6	J F1	ug/Kg	☼	32	44 - 141
2-Hexanone	ND	F1 *	136	48.0	F1	ug/Kg	☼	35	56 - 134
4-Methyl-2-pentanone	ND	*	136	80.2		ug/Kg	☼	59	58 - 135
Acetone	ND	*	136	93.9		ug/Kg	☼	69	53 - 134
Benzene	ND	*	27.3	19.8		ug/Kg	☼	73	70 - 118
Bromodichloromethane	ND	*	27.3	20.4		ug/Kg	☼	75	75 - 119
Bromoform	ND		27.3	16.7		ug/Kg	☼	61	50 - 124
Bromomethane	ND		27.2	20.5		ug/Kg	☼	75	41 - 148
Carbon tetrachloride	ND		27.2	21.1		ug/Kg	☼	78	67 - 126
Chlorobenzene	ND	F1 *	27.3	17.6	F1	ug/Kg	☼	65	68 - 120
Chloroethane	ND		27.2	21.8		ug/Kg	☼	80	48 - 142
Chloroform	ND		27.2	20.0		ug/Kg	☼	73	72 - 125
Chloromethane	ND		27.2	21.4		ug/Kg	☼	79	46 - 136
cis-1,2-Dichloroethene	ND		27.2	19.1		ug/Kg	☼	70	70 - 119
cis-1,3-Dichloropropene	ND	F1 *	27.2	12.5	F1	ug/Kg	☼	46	69 - 129
Dibromochloromethane	ND		27.2	18.3		ug/Kg	☼	67	64 - 129

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-60846-4 MS

Matrix: Solid

Analysis Batch: 222135

Client Sample ID: MW1-SS-20

Prep Type: Total/NA

Prep Batch: 221805

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Added	Result				
Dichlorodifluoromethane	ND		27.2	26.6		ug/Kg	☼	98	38 - 140
Ethylbenzene	ND	*	27.3	17.9		ug/Kg	☼	66	66 - 119
Hexachloro-1,3-butadiene	ND	F1	27.2	10.7	F1	ug/Kg	☼	39	58 - 128
Methyl tert-butyl ether	ND		27.2	18.5		ug/Kg	☼	68	58 - 134
Methylene Chloride	ND		27.3	18.8	J	ug/Kg	☼	69	57 - 129
m-Xylene & p-Xylene	ND	F1	27.2	16.7	F1	ug/Kg	☼	61	69 - 126
Naphthalene	ND		27.2	12.5	J	ug/Kg	☼	46	45 - 141
o-Xylene	ND		27.2	17.9		ug/Kg	☼	66	66 - 127
Styrene	ND	F1 *	27.2	16.7	F1	ug/Kg	☼	61	68 - 120
Tetrachloroethene	ND	F1 *	27.2	16.3	F1	ug/Kg	☼	60	63 - 123
Tetrahydrofuran	ND	*	54.3	30.4	J	ug/Kg	☼	56	49 - 144
Toluene	ND	*	27.2	18.6		ug/Kg	☼	68	67 - 119
trans-1,2-Dichloroethene	ND		27.2	17.7		ug/Kg	☼	65	63 - 122
trans-1,3-Dichloropropene	ND	F1 *	27.2	11.5	J F1	ug/Kg	☼	42	65 - 129
Trichloroethene	ND	*	27.2	19.0		ug/Kg	☼	70	68 - 118
Trichlorofluoromethane	ND		27.2	22.2		ug/Kg	☼	82	59 - 137
Vinyl acetate	ND	F1	67.9	1.78	J F1	ug/Kg	☼	3	52 - 150
Vinyl chloride	ND		27.2	23.1		ug/Kg	☼	85	43 - 131

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		81 - 121
4-Bromofluorobenzene (Surr)	100		79 - 120
Dibromofluoromethane (Surr)	104		78 - 118
Toluene-d8 (Surr)	102		79 - 119
Trifluorotoluene (Surr)	99		52 - 152

Lab Sample ID: 580-60846-4 MSD

Matrix: Solid

Analysis Batch: 222135

Client Sample ID: MW1-SS-20

Prep Type: Total/NA

Prep Batch: 221805

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Added	Result						
1,1,1-Trichloroethane	ND		26.9	21.6		ug/Kg	☼	80	63 - 129	1	40
1,1,2,2-Tetrachloroethane	ND	F1 *	26.8	18.0		ug/Kg	☼	67	65 - 125	10	40
1,1,2-Trichloroethane	ND	F1 *	26.9	20.1		ug/Kg	☼	75	69 - 117	8	40
1,1,2-Trichlorotrifluoroethane	ND		27.0	17.3		ug/Kg	☼	64	57 - 127	10	40
1,1-Dichloroethane	ND	*	26.8	22.5		ug/Kg	☼	84	70 - 128	6	40
1,1-Dichloroethene	ND		27.0	19.6		ug/Kg	☼	73	58 - 123	5	40
1,2,4-Trichlorobenzene	ND	F1	26.8	9.97	F1	ug/Kg	☼	37	61 - 130	10	40
1,2,4-Trimethylbenzene	ND	F1 *	26.8	16.0	F1	ug/Kg	☼	60	61 - 124	5	40
1,2-Dibromoethane	ND	F1 *	26.8	19.5		ug/Kg	☼	73	69 - 119	9	40
1,2-Dichlorobenzene	ND	F1 *	26.8	17.1	F1	ug/Kg	☼	64	69 - 119	11	40
1,2-Dichloroethane	ND	F1 *	26.8	20.0		ug/Kg	☼	75	71 - 121	8	40
1,3,5-Trimethylbenzene	ND	F1 *	26.8	17.0	F1	ug/Kg	☼	63	64 - 125	5	40
1,3-Dichlorobenzene	ND	F1 *	26.9	14.5	F1	ug/Kg	☼	54	70 - 119	5	40
1,4-Dichlorobenzene	ND	F1 *	26.9	14.0	F1	ug/Kg	☼	52	71 - 117	9	40
2-Butanone	ND	F1	134	40.6	J F1	ug/Kg	☼	30	44 - 141	7	40
2-Hexanone	ND	F1 *	134	50.3	F1	ug/Kg	☼	38	56 - 134	5	40
4-Methyl-2-pentanone	ND	*	134	85.7		ug/Kg	☼	64	58 - 135	7	40

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-60846-4 MSD
Matrix: Solid
Analysis Batch: 222135

Client Sample ID: MW1-SS-20
Prep Type: Total/NA
Prep Batch: 221805

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Acetone	ND	*	134	120		ug/Kg	☼	90	53 - 134	25	40	
Benzene	ND	*	26.9	21.5		ug/Kg	☼	80	70 - 118	8	40	
Bromodichloromethane	ND	*	26.9	22.5		ug/Kg	☼	84	75 - 119	10	40	
Bromoform	ND		26.9	18.6		ug/Kg	☼	69	50 - 124	11	40	
Bromomethane	ND		26.8	24.3		ug/Kg	☼	91	41 - 148	17	40	
Carbon tetrachloride	ND		26.9	20.6		ug/Kg	☼	77	67 - 126	3	40	
Chlorobenzene	ND	F1 *	26.9	19.0		ug/Kg	☼	70	68 - 120	7	40	
Chloroethane	ND		26.8	26.1		ug/Kg	☼	98	48 - 142	18	40	
Chloroform	ND		26.8	22.7		ug/Kg	☼	85	72 - 125	13	40	
Chloromethane	ND		26.8	26.4		ug/Kg	☼	98	46 - 136	21	40	
cis-1,2-Dichloroethene	ND		26.8	20.8		ug/Kg	☼	78	70 - 119	9	40	
cis-1,3-Dichloropropene	ND	F1 *	26.9	13.8	F1	ug/Kg	☼	51	69 - 129	10	40	
Dibromochloromethane	ND		26.8	20.4		ug/Kg	☼	76	64 - 129	11	40	
Dichlorodifluoromethane	ND		26.8	28.2		ug/Kg	☼	105	38 - 140	6	40	
Ethylbenzene	ND	*	26.9	18.6		ug/Kg	☼	69	66 - 119	4	40	
Hexachloro-1,3-butadiene	ND	F1	26.8	11.8	F1	ug/Kg	☼	44	58 - 128	10	40	
Methyl tert-butyl ether	ND		26.8	21.2		ug/Kg	☼	79	58 - 134	14	40	
Methylene Chloride	ND		26.9	22.9		ug/Kg	☼	85	57 - 129	20	40	
m-Xylene & p-Xylene	ND	F1	26.9	17.3	F1	ug/Kg	☼	64	69 - 126	3	40	
Naphthalene	ND		26.8	14.6		ug/Kg	☼	54	45 - 141	16	40	
o-Xylene	ND		26.8	19.5		ug/Kg	☼	73	66 - 127	8	40	
Styrene	ND	F1 *	26.8	17.9	F1	ug/Kg	☼	67	68 - 120	7	40	
Tetrachloroethene	ND	F1 *	26.9	15.8	F1	ug/Kg	☼	59	63 - 123	3	40	
Tetrahydrofuran	ND	*	53.6	32.9	J	ug/Kg	☼	61	49 - 144	8	40	
Toluene	ND	*	26.8	19.9		ug/Kg	☼	74	67 - 119	7	40	
trans-1,2-Dichloroethene	ND		26.8	17.9		ug/Kg	☼	67	63 - 122	1	40	
trans-1,3-Dichloropropene	ND	F1 *	26.8	12.6	J F1	ug/Kg	☼	47	65 - 129	9	40	
Trichloroethene	ND	*	26.8	19.7		ug/Kg	☼	74	68 - 118	4	40	
Trichlorofluoromethane	ND		26.8	23.6		ug/Kg	☼	88	59 - 137	6	40	
Vinyl acetate	ND	F1	67.0	2.66	J F1	ug/Kg	☼	4	52 - 150	39	40	
Vinyl chloride	ND		26.8	26.2		ug/Kg	☼	98	43 - 131	13	40	

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	95		81 - 121
4-Bromofluorobenzene (Surr)	98		79 - 120
Dibromofluoromethane (Surr)	103		78 - 118
Toluene-d8 (Surr)	100		79 - 119
Trifluorotoluene (Surr)	104		52 - 152

Lab Sample ID: MB 580-221886/1-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221886

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,1,1,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/08/16 13:49	07/08/16 14:26	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-221886/1-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221886

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
2-Butanone	ND		40	8.9	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
2-Hexanone	ND		20	3.9	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Acetone	ND		15	2.4	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Benzene	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Bromoform	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Chloroform	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Naphthalene	ND		10	1.8	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Styrene	ND		2.0	0.20	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Toluene	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/08/16 13:49	07/08/16 14:26	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/08/16 13:49	07/08/16 14:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		81 - 121	07/08/16 13:49	07/08/16 14:26	1
4-Bromofluorobenzene (Surr)	95		79 - 120	07/08/16 13:49	07/08/16 14:26	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-221886/1-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221886

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	111		78 - 118	07/08/16 13:49	07/08/16 14:26	1
Toluene-d8 (Surr)	103		79 - 119	07/08/16 13:49	07/08/16 14:26	1
Trifluorotoluene (Surr)	92		52 - 152	07/08/16 13:49	07/08/16 14:26	1

Lab Sample ID: LCS 580-221886/2-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	20.1	25.1		ug/Kg		125	63 - 129
1,1,2,2-Tetrachloroethane	20.0	29.8	*	ug/Kg		149	65 - 125
1,1,2-Trichloroethane	20.1	26.0	*	ug/Kg		129	69 - 117
1,1,2-Trichlorotrifluoroethane	20.2	25.5		ug/Kg		127	57 - 127
1,1-Dichloroethane	20.0	28.0	*	ug/Kg		140	70 - 128
1,1-Dichloroethene	20.2	24.8		ug/Kg		123	58 - 123
1,2,4-Trichlorobenzene	20.0	26.2	*	ug/Kg		131	61 - 130
1,2,4-Trimethylbenzene	20.0	28.5	*	ug/Kg		142	61 - 124
1,2-Dibromoethane	20.0	25.9	*	ug/Kg		129	69 - 119
1,2-Dichlorobenzene	20.0	26.9	*	ug/Kg		135	69 - 119
1,2-Dichloroethane	20.0	26.3	*	ug/Kg		131	71 - 121
1,3,5-Trimethylbenzene	20.0	28.5	*	ug/Kg		143	64 - 125
1,3-Dichlorobenzene	20.0	26.4	*	ug/Kg		132	70 - 119
1,4-Dichlorobenzene	20.1	25.5	*	ug/Kg		127	71 - 117
2-Butanone	100	132		ug/Kg		132	44 - 141
2-Hexanone	100	154	*	ug/Kg		154	56 - 134
4-Methyl-2-pentanone	100	166	*	ug/Kg		165	58 - 135
Acetone	100	172	*	ug/Kg		172	53 - 134
Benzene	20.1	25.5	*	ug/Kg		127	70 - 118
Bromodichloromethane	20.1	24.8	*	ug/Kg		124	75 - 119
Bromoform	20.1	24.9		ug/Kg		124	50 - 124
Bromomethane	20.0	25.9		ug/Kg		129	41 - 148
Carbon tetrachloride	20.0	25.5	*	ug/Kg		127	67 - 126
Chlorobenzene	20.1	25.8	*	ug/Kg		128	68 - 120
Chloroethane	20.0	32.3	*	ug/Kg		162	48 - 142
Chloroform	20.0	24.5		ug/Kg		122	72 - 125
Chloromethane	20.0	31.6	*	ug/Kg		158	46 - 136
cis-1,2-Dichloroethene	20.0	25.1	*	ug/Kg		125	70 - 119
cis-1,3-Dichloropropene	20.1	26.7	*	ug/Kg		133	69 - 129
Dibromochloromethane	20.0	24.7		ug/Kg		123	64 - 129
Dichlorodifluoromethane	20.0	25.8		ug/Kg		129	38 - 140
Ethylbenzene	20.1	25.2	*	ug/Kg		126	66 - 119
Hexachloro-1,3-butadiene	20.0	27.9	*	ug/Kg		140	58 - 128
Methyl tert-butyl ether	20.0	27.8	*	ug/Kg		139	58 - 134
Methylene Chloride	20.1	26.4	*	ug/Kg		131	57 - 129
m-Xylene & p-Xylene	20.0	25.5	*	ug/Kg		127	69 - 126
Naphthalene	20.0	27.4		ug/Kg		137	45 - 141
o-Xylene	20.0	26.1	*	ug/Kg		130	66 - 127
Styrene	20.0	25.4	*	ug/Kg		127	68 - 120

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-221886/2-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Tetrachloroethene	20.1	27.7	*	ug/Kg		138	63 - 123
Tetrahydrofuran	40.0	70.3	J *	ug/Kg		176	49 - 144
Toluene	20.0	25.3	*	ug/Kg		126	67 - 119
trans-1,2-Dichloroethene	20.0	24.6	*	ug/Kg		123	63 - 122
trans-1,3-Dichloropropene	20.0	26.2	*	ug/Kg		131	65 - 129
Trichloroethene	20.0	24.3	*	ug/Kg		121	68 - 118
Trichlorofluoromethane	20.0	24.9		ug/Kg		125	59 - 137
Vinyl acetate	50.0	74.1		ug/Kg		148	52 - 150
Vinyl chloride	20.0	30.5	*	ug/Kg		152	43 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	121		81 - 121
4-Bromofluorobenzene (Surr)	92		79 - 120
Dibromofluoromethane (Surr)	111		78 - 118
Toluene-d8 (Surr)	102		79 - 119
Trifluorotoluene (Surr)	95		52 - 152

Lab Sample ID: LCSD 580-221886/3-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 221886

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	20.1	25.0		ug/Kg		124	63 - 129	0	20
1,1,1,2-Tetrachloroethane	20.0	29.7	*	ug/Kg		149	65 - 125	0	22
1,1,1,2-Trichloroethane	20.1	26.0	*	ug/Kg		130	69 - 117	0	18
1,1,1,2-Trichlorotrifluoroethane	20.2	25.5		ug/Kg		127	57 - 127	0	30
1,1-Dichloroethane	20.0	28.3	*	ug/Kg		141	70 - 128	1	21
1,1-Dichloroethene	20.2	24.7		ug/Kg		123	58 - 123	0	23
1,2,4-Trichlorobenzene	20.0	27.4	*	ug/Kg		137	61 - 130	5	22
1,2,4-Trimethylbenzene	20.0	30.7	*	ug/Kg		153	61 - 124	7	18
1,2-Dibromoethane	20.0	26.0	*	ug/Kg		130	69 - 119	0	15
1,2-Dichlorobenzene	20.0	28.9	*	ug/Kg		145	69 - 119	7	17
1,2-Dichloroethane	20.0	25.9	*	ug/Kg		130	71 - 121	1	18
1,3,5-Trimethylbenzene	20.0	30.6	*	ug/Kg		153	64 - 125	7	18
1,3-Dichlorobenzene	20.0	28.8	*	ug/Kg		144	70 - 119	9	17
1,4-Dichlorobenzene	20.1	27.6	*	ug/Kg		138	71 - 117	8	18
2-Butanone	100	126		ug/Kg		126	44 - 141	5	40
2-Hexanone	100	152	*	ug/Kg		152	56 - 134	1	22
4-Methyl-2-pentanone	100	153	*	ug/Kg		153	58 - 135	8	22
Acetone	100	152	*	ug/Kg		152	53 - 134	13	40
Benzene	20.1	25.4	*	ug/Kg		126	70 - 118	0	19
Bromodichloromethane	20.1	24.6	*	ug/Kg		123	75 - 119	1	19
Bromoform	20.1	25.2	*	ug/Kg		126	50 - 124	1	16
Bromomethane	20.0	25.2		ug/Kg		126	41 - 148	3	29
Carbon tetrachloride	20.0	25.4	*	ug/Kg		127	67 - 126	0	19
Chlorobenzene	20.1	26.6	*	ug/Kg		133	68 - 120	3	21
Chloroethane	20.0	33.6	*	ug/Kg		168	48 - 142	4	25
Chloroform	20.0	24.7		ug/Kg		123	72 - 125	1	17

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-221886/3-A
Matrix: Solid
Analysis Batch: 221856

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 221886

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloromethane	20.0	30.8	*	ug/Kg		154	46 - 136	3	26
cis-1,2-Dichloroethene	20.0	24.7	*	ug/Kg		123	70 - 119	1	19
cis-1,3-Dichloropropene	20.1	27.0	*	ug/Kg		135	69 - 129	1	19
Dibromochloromethane	20.0	25.4		ug/Kg		127	64 - 129	3	14
Dichlorodifluoromethane	20.0	26.1		ug/Kg		130	38 - 140	1	26
Ethylbenzene	20.1	26.1	*	ug/Kg		130	66 - 119	3	23
Hexachloro-1,3-butadiene	20.0	30.8	*	ug/Kg		154	58 - 128	10	29
Methyl tert-butyl ether	20.0	26.3		ug/Kg		131	58 - 134	6	20
Methylene Chloride	20.1	25.2		ug/Kg		126	57 - 129	4	21
m-Xylene & p-Xylene	20.0	26.4	*	ug/Kg		132	69 - 126	3	23
Naphthalene	20.0	29.2	*	ug/Kg		146	45 - 141	6	34
o-Xylene	20.0	26.2	*	ug/Kg		131	66 - 127	0	22
Styrene	20.0	26.3	*	ug/Kg		131	68 - 120	4	21
Tetrachloroethene	20.1	30.9	*	ug/Kg		154	63 - 123	11	20
Tetrahydrofuran	40.0	61.1	J *	ug/Kg		153	49 - 144	14	40
Toluene	20.0	26.3	*	ug/Kg		131	67 - 119	4	19
trans-1,2-Dichloroethene	20.0	25.1	*	ug/Kg		125	63 - 122	2	18
trans-1,3-Dichloropropene	20.0	27.2	*	ug/Kg		136	65 - 129	4	20
Trichloroethene	20.0	24.7	*	ug/Kg		123	68 - 118	2	17
Trichlorofluoromethane	20.0	25.0		ug/Kg		125	59 - 137	0	40
Vinyl acetate	50.0	66.7		ug/Kg		133	52 - 150	11	30
Vinyl chloride	20.0	30.8	*	ug/Kg		154	43 - 131	1	40

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	120		81 - 121
4-Bromofluorobenzene (Surr)	91		79 - 120
Dibromofluoromethane (Surr)	111		78 - 118
Toluene-d8 (Surr)	102		79 - 119
Trifluorotoluene (Surr)	91		52 - 152

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-05

Date Collected: 07/06/16 09:00

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-05

Date Collected: 07/06/16 09:00

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-1

Matrix: Solid

Percent Solids: 87.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221931	07/08/16 22:11	W1T	TAL SEA

Client Sample ID: MW1-SS-10

Date Collected: 07/06/16 09:15

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-10

Date Collected: 07/06/16 09:15

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-2

Matrix: Solid

Percent Solids: 66.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221931	07/08/16 22:39	W1T	TAL SEA

Client Sample ID: MW1-SS-15

Date Collected: 07/06/16 09:20

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-15

Date Collected: 07/06/16 09:20

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-3

Matrix: Solid

Percent Solids: 64.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221931	07/08/16 23:06	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-20

Date Collected: 07/06/16 09:30

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-20

Date Collected: 07/06/16 09:30

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-4

Matrix: Solid

Percent Solids: 68.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 12:44	W1T	TAL SEA

Client Sample ID: MW1-SS-25

Date Collected: 07/06/16 09:35

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-25

Date Collected: 07/06/16 09:35

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-5

Matrix: Solid

Percent Solids: 67.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 14:45	W1T	TAL SEA

Client Sample ID: MW1-SS-30

Date Collected: 07/06/16 09:38

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-30

Date Collected: 07/06/16 09:38

Date Received: 07/07/16 15:08

Lab Sample ID: 580-60846-6

Matrix: Solid

Percent Solids: 71.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 15:12	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: MW1-SS-35

Lab Sample ID: 580-60846-7

Date Collected: 07/06/16 09:40

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-35

Lab Sample ID: 580-60846-7

Date Collected: 07/06/16 09:40

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 15:40	W1T	TAL SEA

Client Sample ID: MW1-SS-40

Lab Sample ID: 580-60846-8

Date Collected: 07/06/16 10:30

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-40

Lab Sample ID: 580-60846-8

Date Collected: 07/06/16 10:30

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 16:07	W1T	TAL SEA

Client Sample ID: MW1-SS-45

Lab Sample ID: 580-60846-9

Date Collected: 07/06/16 10:35

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: MW1-SS-45

Lab Sample ID: 580-60846-9

Date Collected: 07/06/16 10:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 16:35	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-05

Lab Sample ID: 580-60846-10

Date Collected: 07/06/16 14:50

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-05

Lab Sample ID: 580-60846-10

Date Collected: 07/06/16 14:50

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 17:03	W1T	TAL SEA

Client Sample ID: SB20-SS-10

Lab Sample ID: 580-60846-11

Date Collected: 07/06/16 15:00

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-10

Lab Sample ID: 580-60846-11

Date Collected: 07/06/16 15:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 17:30	W1T	TAL SEA

Client Sample ID: SB20-SS-15

Lab Sample ID: 580-60846-12

Date Collected: 07/06/16 15:05

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-15

Lab Sample ID: 580-60846-12

Date Collected: 07/06/16 15:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 17:58	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-20

Lab Sample ID: 580-60846-13

Date Collected: 07/06/16 15:20

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-20

Lab Sample ID: 580-60846-13

Date Collected: 07/06/16 15:20

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 67.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221805	07/07/16 16:42	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222135	07/12/16 18:26	W1T	TAL SEA

Client Sample ID: SB20-SS-25

Lab Sample ID: 580-60846-14

Date Collected: 07/06/16 15:25

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-25

Lab Sample ID: 580-60846-14

Date Collected: 07/06/16 15:25

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 72.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 13:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 17:34	W1T	TAL SEA

Client Sample ID: SB20-SS-30

Lab Sample ID: 580-60846-15

Date Collected: 07/06/16 15:35

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-30

Lab Sample ID: 580-60846-15

Date Collected: 07/06/16 15:35

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 13:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 18:02	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: SB20-SS-35

Lab Sample ID: 580-60846-16

Date Collected: 07/06/16 15:40

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-35

Lab Sample ID: 580-60846-16

Date Collected: 07/06/16 15:40

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 65.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 13:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 18:30	W1T	TAL SEA

Client Sample ID: SB20-SS-39

Lab Sample ID: 580-60846-17

Date Collected: 07/06/16 16:05

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: SB20-SS-39

Lab Sample ID: 580-60846-17

Date Collected: 07/06/16 16:05

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 71.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 13:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 18:57	W1T	TAL SEA

Client Sample ID: FD-SS-070616

Lab Sample ID: 580-60846-18

Date Collected: 07/06/16 08:00

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: FD-SS-070616

Lab Sample ID: 580-60846-18

Date Collected: 07/06/16 08:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 07:59	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 17:07	W1T	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Client Sample ID: FD2-SS-070616

Lab Sample ID: 580-60846-19

Date Collected: 07/06/16 17:00

Matrix: Solid

Date Received: 07/07/16 15:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221874	07/08/16 12:53	CBS	TAL SEA

Client Sample ID: FD2-SS-070616

Lab Sample ID: 580-60846-19

Date Collected: 07/06/16 17:00

Matrix: Solid

Date Received: 07/07/16 15:08

Percent Solids: 66.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			221886	07/08/16 13:49	IWH	TAL SEA
Total/NA	Analysis	8260C		1	221856	07/08/16 16:39	W1T	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	WA100007	11-06-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-60846-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-60846-1	MW1-SS-05	Solid	07/06/16 09:00	07/07/16 15:08
580-60846-2	MW1-SS-10	Solid	07/06/16 09:15	07/07/16 15:08
580-60846-3	MW1-SS-15	Solid	07/06/16 09:20	07/07/16 15:08
580-60846-4	MW1-SS-20	Solid	07/06/16 09:30	07/07/16 15:08
580-60846-5	MW1-SS-25	Solid	07/06/16 09:35	07/07/16 15:08
580-60846-6	MW1-SS-30	Solid	07/06/16 09:38	07/07/16 15:08
580-60846-7	MW1-SS-35	Solid	07/06/16 09:40	07/07/16 15:08
580-60846-8	MW1-SS-40	Solid	07/06/16 10:30	07/07/16 15:08
580-60846-9	MW1-SS-45	Solid	07/06/16 10:35	07/07/16 15:08
580-60846-10	SB20-SS-05	Solid	07/06/16 14:50	07/07/16 15:08
580-60846-11	SB20-SS-10	Solid	07/06/16 15:00	07/07/16 15:08
580-60846-12	SB20-SS-15	Solid	07/06/16 15:05	07/07/16 15:08
580-60846-13	SB20-SS-20	Solid	07/06/16 15:20	07/07/16 15:08
580-60846-14	SB20-SS-25	Solid	07/06/16 15:25	07/07/16 15:08
580-60846-15	SB20-SS-30	Solid	07/06/16 15:35	07/07/16 15:08
580-60846-16	SB20-SS-35	Solid	07/06/16 15:40	07/07/16 15:08
580-60846-17	SB20-SS-39	Solid	07/06/16 16:05	07/07/16 15:08
580-60846-18	FD-SS-070616	Solid	07/06/16 08:00	07/07/16 15:08
580-60846-19	FD2-SS-070616	Solid	07/06/16 17:00	07/07/16 15:08

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Loc: 580
60846

11922 E. First Ave., Spokane WA 99206-5302
9405 SW Nimbus Ave., Beaverton, OR 97008-7145
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

509-924-9200 FAX 924-9290
503-906-9200 FAX 906-9210
907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: CH2M		INVOICE TO: UPRR		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> <1 STD. Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD. <input type="checkbox"/> OTHER Specify: * Turnaround Requests less than standard may incur Rush Charges.																																															
REPORT TO: Steve Demus ADDRESS: 999 W. Riverside, Ste 500 Spokane, WA 99201 PHONE: 509-944-1785 FAX: email: sdemus@ch2m.com		P.O. NUMBER:																																																	
PROJECT NAME: UPRR Freeman		PRESERVATIVE		<table border="1"> <thead> <tr> <th>MATRIX (W, S, O)</th> <th># OF CONT.</th> <th>LOCATION/ COMMENTS</th> <th>TA WO ID</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>4</td> <td>Lab QC</td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>				MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID	S	2				2				2				4	Lab QC			2				2				2				2				2				4		
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SAMPLED BY: Steve Demus		<table border="1"> <thead> <tr> <th>meq/water</th> <th>none</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		meq/water	none																																														
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CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	meq/water	none																																																
1 MWI-SS-05	7-6-16 / 9:00																																																		
2 MWI-SS-10	/ 9:15																																																		
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7 MWI-SS-35	/ 9:40																																																		
8 MWI-SS-40	/ 10:30																																																		
9 MWI-SS-45	/ 10:35																																																		
10 SB20-SS-05	/ 14:50																																																		



TB Cooler R2 Cor SS Unc S6
Cooler Dsc 1/2 liter @ Lab 1350
Wet Packs Packing 1/2 liter
95 CS

RELEASED BY: Steve Demus	FIRM: CH2M	DATE: 7-7-16	TIME: 9:15	RECEIVED BY: [Signature]	FIRM: TASA	DATE: 7/7/16	TIME: 1350
RELEASED BY:	FIRM:	DATE:	TIME:	RECEIVED BY:	FIRM:	DATE:	TIME:

ADDITIONAL REMARKS: TEMP: PAGE 1 OF 2

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302
 9405 SW Nimbus Ave., Beaverton, OR 97008-7145
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

509-924-9200 FAX 924-9290
 503-906-9200 FAX 906-9210
 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: CH2M		INVOICE TO: UPRR		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> <1 STD. Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD. <input type="checkbox"/> OTHER Specify: * Turnaround Requests less than standard may incur Rush Charges.											
REPORT TO: Steve Demus ADDRESS: 999 W. Riverside Ave., Ste 500 Spokane, WA 99201		P.O. NUMBER:													
PHONE: 509-944-1785 FAX: email: sdemus@ch2m.com		PRESERVATIVE													
PROJECT NAME: UPRR Freeman		PROJECT NUMBER:													
SAMPLED BY: Steve Demus		REQUESTED ANALYSES													
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	Moisture	Dry Weight					MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO II				
1 SB20-SS-10	7-6-16 / 15:00	8200B						5	4						
2 SB20-SS-15	/ 15:05								4						
3 SB20-SS-20	/ 15:20								4						
4 SB20-SS-25	/ 15:25								4						
5 SB20-SS-30	/ 15:35								4						
6 SB20-SS-35	/ 15:40								4						
7 SB20-SS-39	/ 16:05								4						
8 FD-SS-070616	/ 08:00								2						
9 FD2-SS-070616	/ 17:00								4						
10															
RELEASED BY: Steve Demus		FIRM: CH2M		DATE: 7-7-16		TIME: 9:15		RECEIVED BY: Wick Kody Kidley		FIRM: DASA		DATE: 7/7/16		TIME: 1350	
RELEASED BY:		FIRM:		DATE:		TIME:		RECEIVED BY:		FIRM:		DATE:		TIME:	
PRINT NAME:		FIRM:		DATE:		TIME:		PRINT NAME:		FIRM:		DATE:		TIME:	
ADDITIONAL REMARKS:												TEMP:		PAGE 2 OF 2	

TB Cooler/RL-Cor 5.8 Unc 5.6
 Cooler Dsch b/c @ Lab 1350
 Wet Packs Packing b/c White
 95 CS

1
2
3
4
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7
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9
10

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-60846-1

Login Number: 60846
List Number: 1
Creator: Gall, Brandon A

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	IDs on containers do not match the COC. Logged in per COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-60880-1

TestAmerica Sample Delivery Group: 580-60880-1
Client Project/Site: Freeman WA-Grain Handling Facility
Revision: 1

For:

CH2M Hill, Inc.
2020 SW 4th Ave
Suite 300
Portland, Oregon 97201

Attn: Brad Ostapkowicz



Authorized for release by:
4/18/2018 5:13:17 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Job ID: 580-60880-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-60880-1

Comments

Report was revised 4-18-18 to update the client sample IDs to the prefix "SB21" per client request.

No additional comments.

Receipt

The samples were received on 7/8/2016 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

Receipt Exceptions

The client requested via email that the samples in this job be logged in with the ID prefix "SB20" instead of the prefix "SB15" as it appears on the chain of custody and the container labels.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-222360 recovered above the upper control limit for Vinyl chloride and Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SB20-SS-05 (580-60880-1), SB20-SS-10 (580-60880-2), SB20-SS-15 (580-60880-3), SB20-SS-20 (580-60880-4), SB20-SS-25 (580-60880-5), SB20-SS-30 (580-60880-6), SB20-SS-35 (580-60880-7), SB20-SS-40 (580-60880-8), SB20-SS-45 (580-60880-9), SB20-SS-50 (580-60880-10), SB20-SS-55 (580-60880-11), SB20-SS-60 (580-60880-12), SB20-SS-65 (580-60880-13), SB-FD-070716 (580-60880-14) and (CCVIS 580-222360/4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-05

Lab Sample ID: 580-60880-1

Date Collected: 07/07/16 10:10

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.87	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,1-Dichloroethane	ND		0.97	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,2,4-Trichlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,2,4-Trimethylbenzene	ND		1.9	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,2-Dibromoethane	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,2-Dichlorobenzene	ND		1.9	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,2-Dichloroethane	ND		0.97	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
1,4-Dichlorobenzene	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
2-Butanone	ND		39	8.7	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
2-Hexanone	ND		19	3.8	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
4-Methyl-2-pentanone	ND		9.7	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Acetone	42		15	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Benzene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Bromodichloromethane	ND		0.97	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Bromoform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Bromomethane	ND		0.97	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Carbon tetrachloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Chlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Chloroform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Chloromethane	ND		0.97	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
cis-1,2-Dichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
cis-1,3-Dichloropropene	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Dichlorodifluoromethane	ND		1.9	0.48	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Ethylbenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Hexachloro-1,3-butadiene	ND		2.9	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Methyl tert-butyl ether	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Methylene Chloride	1.3 J		15	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Naphthalene	ND		9.7	1.7	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Tetrachloroethene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Tetrahydrofuran	ND		97	20	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Toluene	1.3 J		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
trans-1,2-Dichloroethene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
trans-1,3-Dichloropropene	ND		9.7	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Trichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Trichlorofluoromethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Vinyl acetate	ND		4.9	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1
Vinyl chloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 13:09	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-05

Lab Sample ID: 580-60880-1

Date Collected: 07/07/16 10:10

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		81 - 121	07/08/16 16:50	07/14/16 13:09	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 13:09	1
Dibromofluoromethane (Surr)	108		78 - 118	07/08/16 16:50	07/14/16 13:09	1
Toluene-d8 (Surr)	101		79 - 119	07/08/16 16:50	07/14/16 13:09	1
Trifluorotoluene (Surr)	97		52 - 152	07/08/16 16:50	07/14/16 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	11.0		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-10

Lab Sample ID: 580-60880-2

Date Collected: 07/07/16 10:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,1,2,2-Tetrachloroethane	ND		3.4	0.77	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,1,2-Trichlorotrifluoroethane	ND		2.6	0.45	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,1-Dichloroethane	ND		0.86	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,1-Dichloroethene	ND		4.3	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,2,4-Trichlorobenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,2,4-Trimethylbenzene	ND		1.7	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,2-Dibromoethane	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,2-Dichlorobenzene	ND		1.7	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,2-Dichloroethane	ND		0.86	0.13	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,3,5-Trimethylbenzene	ND		4.3	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
1,4-Dichlorobenzene	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
2-Butanone	ND		34	7.6	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
2-Hexanone	ND		17	3.3	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
4-Methyl-2-pentanone	ND		8.6	1.3	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Acetone	ND		13	2.1	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Benzene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Bromodichloromethane	ND		0.86	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Bromoform	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Bromomethane	ND		0.86	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Carbon tetrachloride	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Chlorobenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Chloroform	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Chloromethane	ND		0.86	0.12	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
cis-1,2-Dichloroethene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
cis-1,3-Dichloropropene	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Dibromochloromethane	ND		1.7	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Dichlorodifluoromethane	ND		1.7	0.42	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Ethylbenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Hexachloro-1,3-butadiene	ND		2.6	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Methyl tert-butyl ether	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Methylene Chloride	1.5	J	13	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Naphthalene	ND		8.6	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Tetrachloroethene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Tetrahydrofuran	ND		86	18	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Toluene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
trans-1,2-Dichloroethene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
trans-1,3-Dichloropropene	ND		8.6	1.2	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Trichloroethene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Trichlorofluoromethane	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Vinyl acetate	ND		4.3	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1
Vinyl chloride	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 13:37	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-10

Lab Sample ID: 580-60880-2

Date Collected: 07/07/16 10:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/08/16 16:50	07/14/16 13:37	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/08/16 16:50	07/14/16 13:37	1
Dibromofluoromethane (Surr)	105		78 - 118	07/08/16 16:50	07/14/16 13:37	1
Toluene-d8 (Surr)	100		79 - 119	07/08/16 16:50	07/14/16 13:37	1
Trifluorotoluene (Surr)	96		52 - 152	07/08/16 16:50	07/14/16 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.5		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	12.5		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-15

Lab Sample ID: 580-60880-3

Date Collected: 07/07/16 10:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 95.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,1,2,2-Tetrachloroethane	ND		4.1	0.93	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,1,2-Trichlorotrifluoroethane	ND		3.1	0.53	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,1-Dichloroethane	ND		1.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,1-Dichloroethene	ND		5.1	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,2,4-Trichlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,2,4-Trimethylbenzene	ND		2.1	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,2-Dibromoethane	ND		1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,2-Dichlorobenzene	ND		2.1	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,3,5-Trimethylbenzene	ND		5.1	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,3-Dichlorobenzene	ND		2.1	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
2-Butanone	ND		41	9.1	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
2-Hexanone	ND		21	4.0	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Acetone	3.7	J	15	2.5	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Benzene	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Bromodichloromethane	ND		1.0	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Bromoform	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Bromomethane	ND		1.0	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Carbon tetrachloride	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Chlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Chloroform	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Chloromethane	ND		1.0	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
cis-1,2-Dichloroethene	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
cis-1,3-Dichloropropene	ND		1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Dibromochloromethane	ND		2.1	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Dichlorodifluoromethane	ND		2.1	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Ethylbenzene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Hexachloro-1,3-butadiene	ND		3.1	0.62	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Methyl tert-butyl ether	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Methylene Chloride	1.9	J	15	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Naphthalene	ND		10	1.9	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Tetrachloroethene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Tetrahydrofuran	ND		100	21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Toluene	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
trans-1,2-Dichloroethene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Trichloroethene	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Trichlorofluoromethane	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Vinyl acetate	ND		5.1	0.62	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1
Vinyl chloride	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 14:04	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-15

Lab Sample ID: 580-60880-3

Date Collected: 07/07/16 10:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 95.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/08/16 16:50	07/14/16 14:04	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 14:04	1
Dibromofluoromethane (Surr)	105		78 - 118	07/08/16 16:50	07/14/16 14:04	1
Toluene-d8 (Surr)	100		79 - 119	07/08/16 16:50	07/14/16 14:04	1
Trifluorotoluene (Surr)	97		52 - 152	07/08/16 16:50	07/14/16 14:04	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.0		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	5.0		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-20

Lab Sample ID: 580-60880-4

Date Collected: 07/07/16 10:45

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 93.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.88	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,1,2-Trichloroethane	ND		2.0	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,1-Dichloroethane	ND		0.98	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,2,4-Trichlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,2-Dibromoethane	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,2-Dichlorobenzene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,2-Dichloroethane	ND		0.98	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,3-Dichlorobenzene	ND		2.0	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
1,4-Dichlorobenzene	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
2-Butanone	ND		39	8.7	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
2-Hexanone	ND		20	3.8	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
4-Methyl-2-pentanone	ND		9.8	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Acetone	ND		15	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Benzene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Bromodichloromethane	ND		0.98	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Bromoform	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Bromomethane	ND		0.98	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Carbon tetrachloride	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Chlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Chloroethane	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Chloroform	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Chloromethane	ND		0.98	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
cis-1,2-Dichloroethene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
cis-1,3-Dichloropropene	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Dibromochloromethane	ND		2.0	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Dichlorodifluoromethane	ND		2.0	0.48	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Ethylbenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Hexachloro-1,3-butadiene	ND		2.9	0.59	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Methyl tert-butyl ether	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Methylene Chloride	0.59	J	15	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Naphthalene	ND		9.8	1.8	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
o-Xylene	ND		2.0	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Styrene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Tetrachloroethene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Tetrahydrofuran	ND		98	20	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Toluene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
trans-1,2-Dichloroethene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
trans-1,3-Dichloropropene	ND		9.8	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Trichloroethene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Trichlorofluoromethane	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Vinyl acetate	ND		4.9	0.59	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1
Vinyl chloride	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 14:32	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-20

Lab Sample ID: 580-60880-4

Date Collected: 07/07/16 10:45

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 93.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		81 - 121	07/08/16 16:50	07/14/16 14:32	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/08/16 16:50	07/14/16 14:32	1
Dibromofluoromethane (Surr)	108		78 - 118	07/08/16 16:50	07/14/16 14:32	1
Toluene-d8 (Surr)	101		79 - 119	07/08/16 16:50	07/14/16 14:32	1
Trifluorotoluene (Surr)	98		52 - 152	07/08/16 16:50	07/14/16 14:32	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.2		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	6.8		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-25

Lab Sample ID: 580-60880-5

Date Collected: 07/07/16 10:50

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,1,2,2-Tetrachloroethane	ND		3.3	0.74	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,1,2-Trichlorotrifluoroethane	ND		2.5	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,1-Dichloroethane	ND		0.83	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,1-Dichloroethene	ND		4.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,2,4-Trichlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,2,4-Trimethylbenzene	ND		1.7	0.13	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,2-Dibromoethane	ND		0.83	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,2-Dichlorobenzene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,2-Dichloroethane	ND		0.83	0.12	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,3,5-Trimethylbenzene	ND		4.1	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
1,4-Dichlorobenzene	ND		0.83	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
2-Butanone	ND		33	7.4	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
2-Hexanone	ND		17	3.2	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
4-Methyl-2-pentanone	ND		8.3	1.2	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Acetone	ND		12	2.0	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Benzene	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Bromodichloromethane	ND		0.83	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Bromoform	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Bromomethane	ND		0.83	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Carbon tetrachloride	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Chlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Chloroform	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Chloromethane	ND		0.83	0.12	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
cis-1,2-Dichloroethene	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
cis-1,3-Dichloropropene	ND		0.83	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Dibromochloromethane	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Dichlorodifluoromethane	ND		1.7	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Ethylbenzene	ND		1.7	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Hexachloro-1,3-butadiene	ND		2.5	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Methyl tert-butyl ether	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Methylene Chloride	2.2	J	12	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Naphthalene	ND		8.3	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Tetrachloroethene	ND		1.7	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Tetrahydrofuran	ND		83	17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Toluene	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
trans-1,2-Dichloroethene	ND		1.7	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
trans-1,3-Dichloropropene	ND		8.3	1.2	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Trichloroethene	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Trichlorofluoromethane	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Vinyl acetate	ND		4.1	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1
Vinyl chloride	ND		1.7	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:00	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-25

Lab Sample ID: 580-60880-5

Date Collected: 07/07/16 10:50

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		81 - 121	07/08/16 16:50	07/14/16 15:00	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 15:00	1
Dibromofluoromethane (Surr)	107		78 - 118	07/08/16 16:50	07/14/16 15:00	1
Toluene-d8 (Surr)	101		79 - 119	07/08/16 16:50	07/14/16 15:00	1
Trifluorotoluene (Surr)	98		52 - 152	07/08/16 16:50	07/14/16 15:00	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.9		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	7.1		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-30

Lab Sample ID: 580-60880-6

Date Collected: 07/07/16 12:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.88	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,1,2-Trichloroethane	ND		2.0	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,1-Dichloroethane	ND		0.98	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,2,4-Trichlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,2-Dibromoethane	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,2-Dichlorobenzene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,2-Dichloroethane	ND		0.98	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,3-Dichlorobenzene	ND		2.0	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
1,4-Dichlorobenzene	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
2-Butanone	ND		39	8.7	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
2-Hexanone	ND		20	3.8	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
4-Methyl-2-pentanone	ND		9.8	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Acetone	ND		15	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Benzene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Bromodichloromethane	ND		0.98	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Bromoform	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Bromomethane	ND		0.98	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Carbon tetrachloride	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Chlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Chloroethane	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Chloroform	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Chloromethane	ND		0.98	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
cis-1,2-Dichloroethene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
cis-1,3-Dichloropropene	ND		0.98	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Dibromochloromethane	ND		2.0	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Dichlorodifluoromethane	ND		2.0	0.48	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Ethylbenzene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Hexachloro-1,3-butadiene	ND		2.9	0.59	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Methyl tert-butyl ether	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Methylene Chloride	1.0	J	15	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Naphthalene	ND		9.8	1.8	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
o-Xylene	ND		2.0	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Styrene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Tetrachloroethene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Tetrahydrofuran	ND		98	20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Toluene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
trans-1,2-Dichloroethene	ND		2.0	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
trans-1,3-Dichloropropene	ND		9.8	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Trichloroethene	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Trichlorofluoromethane	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Vinyl acetate	ND		4.9	0.59	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1
Vinyl chloride	ND		2.0	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 15:27	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-30

Lab Sample ID: 580-60880-6

Date Collected: 07/07/16 12:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/08/16 16:50	07/14/16 15:27	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 15:27	1
Dibromofluoromethane (Surr)	105		78 - 118	07/08/16 16:50	07/14/16 15:27	1
Toluene-d8 (Surr)	103		79 - 119	07/08/16 16:50	07/14/16 15:27	1
Trifluorotoluene (Surr)	98		52 - 152	07/08/16 16:50	07/14/16 15:27	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.5		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	10.5		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-35

Lab Sample ID: 580-60880-7

Date Collected: 07/07/16 12:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 79.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,1,1,2-Tetrachloroethane	ND	F1	4.1	0.93	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,1,2-Trichloroethane	ND	F1	2.1	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,1,2-Trichlorotrifluoroethane	ND		3.1	0.54	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,1-Dichloroethane	ND	F1	1.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,1-Dichloroethene	ND		5.2	0.52	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,2,4-Trichlorobenzene	ND	F1	2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,2,4-Trimethylbenzene	ND	F1	2.1	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,2-Dibromoethane	ND	F1	1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,2-Dichlorobenzene	ND	F1	2.1	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,2-Dichloroethane	ND	F1	1.0	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,3,5-Trimethylbenzene	ND	F1	5.2	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,3-Dichlorobenzene	ND	F1	2.1	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
1,4-Dichlorobenzene	ND	F1	1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
2-Butanone	ND		41	9.2	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
2-Hexanone	ND	F1	21	4.0	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
4-Methyl-2-pentanone	ND		10	1.6	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Acetone	ND		16	2.5	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Benzene	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Bromodichloromethane	ND	F1	1.0	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Bromoform	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Bromomethane	ND		1.0	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Carbon tetrachloride	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Chlorobenzene	ND	F1	2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Chloroethane	ND	F2	2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Chloroform	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Chloromethane	ND		1.0	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
cis-1,2-Dichloroethene	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
cis-1,3-Dichloropropene	ND	F1	1.0	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Dibromochloromethane	ND	F1	2.1	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Dichlorodifluoromethane	ND		2.1	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Ethylbenzene	ND	F1	2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Hexachloro-1,3-butadiene	ND	F1	3.1	0.62	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Methyl tert-butyl ether	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Methylene Chloride	ND		16	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
m-Xylene & p-Xylene	ND	F1	2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Naphthalene	ND		10	1.9	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
o-Xylene	ND	F1	2.1	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Styrene	ND	F1	2.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Tetrachloroethene	ND	F1	2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Tetrahydrofuran	ND		100	21	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Toluene	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
trans-1,2-Dichloroethene	ND		2.1	0.41	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
trans-1,3-Dichloropropene	ND	F1	10	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Trichloroethene	ND	F1	2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Trichlorofluoromethane	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Vinyl acetate	ND	F1	5.2	0.62	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1
Vinyl chloride	ND		2.1	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 15:55	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-35

Lab Sample ID: 580-60880-7

Date Collected: 07/07/16 12:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 79.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		81 - 121	07/08/16 16:50	07/14/16 15:55	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/08/16 16:50	07/14/16 15:55	1
Dibromofluoromethane (Surr)	108		78 - 118	07/08/16 16:50	07/14/16 15:55	1
Toluene-d8 (Surr)	99		79 - 119	07/08/16 16:50	07/14/16 15:55	1
Trifluorotoluene (Surr)	95		52 - 152	07/08/16 16:50	07/14/16 15:55	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.1		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	20.9		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-40

Lab Sample ID: 580-60880-8

Date Collected: 07/07/16 13:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 84.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,1,2,2-Tetrachloroethane	ND		3.4	0.77	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,1,2-Trichlorotrifluoroethane	ND		2.6	0.45	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,1-Dichloroethane	ND		0.86	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,1-Dichloroethene	ND		4.3	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,2,4-Trichlorobenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,2,4-Trimethylbenzene	ND		1.7	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,2-Dibromoethane	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,2-Dichlorobenzene	ND		1.7	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,2-Dichloroethane	ND		0.86	0.13	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,3,5-Trimethylbenzene	ND		4.3	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
1,4-Dichlorobenzene	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
2-Butanone	ND		34	7.6	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
2-Hexanone	ND		17	3.3	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
4-Methyl-2-pentanone	ND		8.6	1.3	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Acetone	ND		13	2.1	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Benzene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Bromodichloromethane	ND		0.86	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Bromoform	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Bromomethane	ND		0.86	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Carbon tetrachloride	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Chlorobenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Chloroform	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Chloromethane	ND		0.86	0.12	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
cis-1,2-Dichloroethene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
cis-1,3-Dichloropropene	ND		0.86	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Dibromochloromethane	ND		1.7	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Dichlorodifluoromethane	ND		1.7	0.42	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Ethylbenzene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Hexachloro-1,3-butadiene	ND		2.6	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Methyl tert-butyl ether	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Methylene Chloride	ND		13	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Naphthalene	ND		8.6	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Tetrachloroethene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Tetrahydrofuran	ND		86	18	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Toluene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
trans-1,2-Dichloroethene	ND		1.7	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
trans-1,3-Dichloropropene	ND		8.6	1.2	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Trichloroethene	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Trichlorofluoromethane	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Vinyl acetate	ND		4.3	0.51	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1
Vinyl chloride	ND		1.7	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:18	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-40

Lab Sample ID: 580-60880-8

Date Collected: 07/07/16 13:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 84.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/08/16 16:50	07/14/16 17:18	1
4-Bromofluorobenzene (Surr)	99		79 - 120	07/08/16 16:50	07/14/16 17:18	1
Dibromofluoromethane (Surr)	106		78 - 118	07/08/16 16:50	07/14/16 17:18	1
Toluene-d8 (Surr)	101		79 - 119	07/08/16 16:50	07/14/16 17:18	1
Trifluorotoluene (Surr)	95		52 - 152	07/08/16 16:50	07/14/16 17:18	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.6		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	15.4		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-45

Lab Sample ID: 580-60880-9

Date Collected: 07/07/16 13:05

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 77.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,1,2,2-Tetrachloroethane	ND		3.8	0.87	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,1-Dichloroethane	ND		0.96	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,1-Dichloroethene	ND		4.8	0.48	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,2,4-Trichlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,2-Dibromoethane	ND		0.96	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,2-Dichlorobenzene	ND		1.9	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,2-Dichloroethane	ND		0.96	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,3,5-Trimethylbenzene	ND		4.8	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
1,4-Dichlorobenzene	ND		0.96	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
2-Butanone	ND		38	8.6	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
2-Hexanone	ND		19	3.7	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
4-Methyl-2-pentanone	ND		9.6	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Acetone	8.7	J	14	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Benzene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Bromodichloromethane	ND		0.96	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Bromoform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Bromomethane	ND		0.96	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Carbon tetrachloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Chlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Chloroform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Chloromethane	ND		0.96	0.13	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
cis-1,2-Dichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
cis-1,3-Dichloropropene	ND		0.96	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Dichlorodifluoromethane	ND		1.9	0.47	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Ethylbenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Hexachloro-1,3-butadiene	ND		2.9	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Methyl tert-butyl ether	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Methylene Chloride	0.52	J	14	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Naphthalene	ND		9.6	1.7	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Tetrachloroethene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Tetrahydrofuran	ND		96	20	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Toluene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
trans-1,2-Dichloroethene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
trans-1,3-Dichloropropene	ND		9.6	1.3	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Trichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Trichlorofluoromethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Vinyl acetate	ND		4.8	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1
Vinyl chloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 17:46	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-45

Lab Sample ID: 580-60880-9

Date Collected: 07/07/16 13:05

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 77.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		81 - 121	07/08/16 16:50	07/14/16 17:46	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 17:46	1
Dibromofluoromethane (Surr)	106		78 - 118	07/08/16 16:50	07/14/16 17:46	1
Toluene-d8 (Surr)	101		79 - 119	07/08/16 16:50	07/14/16 17:46	1
Trifluorotoluene (Surr)	95		52 - 152	07/08/16 16:50	07/14/16 17:46	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77.2		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	22.8		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-50

Lab Sample ID: 580-60880-10

Date Collected: 07/07/16 13:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,1,2,2-Tetrachloroethane	ND		4.3	0.97	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,1,2-Trichloroethane	ND		2.2	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.56	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,1-Dichloroethane	ND		1.1	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,1-Dichloroethene	ND		5.4	0.54	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,2,4-Trichlorobenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,2,4-Trimethylbenzene	ND		2.2	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,2-Dibromoethane	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,2-Dichlorobenzene	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,2-Dichloroethane	ND		1.1	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,3,5-Trimethylbenzene	ND		5.4	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,3-Dichlorobenzene	ND		2.2	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
1,4-Dichlorobenzene	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
2-Butanone	ND		43	9.6	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
2-Hexanone	ND		22	4.2	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
4-Methyl-2-pentanone	ND		11	1.6	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Acetone	ND		16	2.6	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Benzene	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Bromodichloromethane	ND		1.1	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Bromoform	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Bromomethane	ND		1.1	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Carbon tetrachloride	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Chlorobenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Chloroethane	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Chloroform	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
cis-1,2-Dichloroethene	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
cis-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Dibromochloromethane	ND		2.2	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Dichlorodifluoromethane	ND		2.2	0.53	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Ethylbenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Hexachloro-1,3-butadiene	ND		3.2	0.65	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Methyl tert-butyl ether	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Methylene Chloride	1.5	J	16	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
m-Xylene & p-Xylene	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Naphthalene	ND		11	1.9	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
o-Xylene	ND		2.2	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Styrene	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Tetrachloroethene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Tetrahydrofuran	ND		110	22	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Toluene	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
trans-1,2-Dichloroethene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
trans-1,3-Dichloropropene	ND		11	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Trichloroethene	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Trichlorofluoromethane	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Vinyl acetate	ND		5.4	0.65	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1
Vinyl chloride	ND		2.2	0.32	ug/Kg	☼	07/08/16 16:50	07/14/16 18:14	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-50

Lab Sample ID: 580-60880-10

Date Collected: 07/07/16 13:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		81 - 121	07/08/16 16:50	07/14/16 18:14	1
4-Bromofluorobenzene (Surr)	98		79 - 120	07/08/16 16:50	07/14/16 18:14	1
Dibromofluoromethane (Surr)	103		78 - 118	07/08/16 16:50	07/14/16 18:14	1
Toluene-d8 (Surr)	99		79 - 119	07/08/16 16:50	07/14/16 18:14	1
Trifluorotoluene (Surr)	95		52 - 152	07/08/16 16:50	07/14/16 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	7.7		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-55

Lab Sample ID: 580-60880-11

Date Collected: 07/07/16 13:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.87	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,1-Dichloroethane	ND		0.97	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,1-Dichloroethene	ND		4.8	0.48	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,2,4-Trichlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,2-Dibromoethane	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,2-Dichlorobenzene	ND		1.9	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,2-Dichloroethane	ND		0.97	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,3,5-Trimethylbenzene	ND		4.8	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
1,4-Dichlorobenzene	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
2-Butanone	ND		39	8.6	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
2-Hexanone	ND		19	3.8	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
4-Methyl-2-pentanone	ND		9.7	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Acetone	23		14	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Benzene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Bromodichloromethane	ND		0.97	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Bromoform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Bromomethane	ND		0.97	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Carbon tetrachloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Chlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Chloroform	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Chloromethane	ND		0.97	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
cis-1,2-Dichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
cis-1,3-Dichloropropene	ND		0.97	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Dichlorodifluoromethane	ND		1.9	0.47	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Ethylbenzene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Hexachloro-1,3-butadiene	ND		2.9	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Methyl tert-butyl ether	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Methylene Chloride	3.0 J		14	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Naphthalene	ND		9.7	1.7	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Tetrachloroethene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Tetrahydrofuran	ND		97	20	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Toluene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
trans-1,2-Dichloroethene	ND		1.9	0.39	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
trans-1,3-Dichloropropene	ND		9.7	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Trichloroethene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Trichlorofluoromethane	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Vinyl acetate	ND		4.8	0.58	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1
Vinyl chloride	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 18:41	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-55

Lab Sample ID: 580-60880-11

Date Collected: 07/07/16 13:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		81 - 121	07/08/16 16:50	07/14/16 18:41	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/08/16 16:50	07/14/16 18:41	1
Dibromofluoromethane (Surr)	106		78 - 118	07/08/16 16:50	07/14/16 18:41	1
Toluene-d8 (Surr)	103		79 - 119	07/08/16 16:50	07/14/16 18:41	1
Trifluorotoluene (Surr)	97		52 - 152	07/08/16 16:50	07/14/16 18:41	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.4		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	12.6		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-60

Lab Sample ID: 580-60880-12

Date Collected: 07/07/16 13:55

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,1,2,2-Tetrachloroethane	ND		4.3	0.98	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,1,2-Trichloroethane	ND		2.2	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,1,2-Trichlorotrifluoroethane	ND		3.3	0.57	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,1-Dichloroethane	ND		1.1	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,1-Dichloroethene	ND		5.4	0.54	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,2,4-Trichlorobenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,2,4-Trimethylbenzene	ND		2.2	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,2-Dibromoethane	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,2-Dichlorobenzene	ND		2.2	0.34	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,2-Dichloroethane	ND		1.1	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,3,5-Trimethylbenzene	ND		5.4	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,3-Dichlorobenzene	ND		2.2	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
1,4-Dichlorobenzene	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
2-Butanone	ND		43	9.7	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
2-Hexanone	ND		22	4.2	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
4-Methyl-2-pentanone	ND		11	1.6	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Acetone	ND		16	2.6	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Benzene	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Bromodichloromethane	ND		1.1	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Bromoform	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Bromomethane	ND		1.1	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Carbon tetrachloride	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Chlorobenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Chloroethane	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Chloroform	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
cis-1,2-Dichloroethene	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
cis-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Dibromochloromethane	ND		2.2	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Dichlorodifluoromethane	ND		2.2	0.53	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Ethylbenzene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Hexachloro-1,3-butadiene	ND		3.3	0.65	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Methyl tert-butyl ether	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Methylene Chloride	ND		16	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
m-Xylene & p-Xylene	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Naphthalene	ND		11	2.0	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
o-Xylene	ND		2.2	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Styrene	ND		2.2	0.22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Tetrachloroethene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Tetrahydrofuran	ND		110	22	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Toluene	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
trans-1,2-Dichloroethene	ND		2.2	0.43	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
trans-1,3-Dichloropropene	ND		11	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Trichloroethene	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Trichlorofluoromethane	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Vinyl acetate	ND		5.4	0.65	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1
Vinyl chloride	ND		2.2	0.33	ug/Kg	☼	07/08/16 16:50	07/14/16 19:09	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-60

Lab Sample ID: 580-60880-12

Date Collected: 07/07/16 13:55

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/08/16 16:50	07/14/16 19:09	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/08/16 16:50	07/14/16 19:09	1
Dibromofluoromethane (Surr)	105		78 - 118	07/08/16 16:50	07/14/16 19:09	1
Toluene-d8 (Surr)	100		79 - 119	07/08/16 16:50	07/14/16 19:09	1
Trifluorotoluene (Surr)	96		52 - 152	07/08/16 16:50	07/14/16 19:09	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.7		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	7.3		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-65

Lab Sample ID: 580-60880-13

Date Collected: 07/07/16 14:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.89	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,1-Dichloroethane	ND		0.99	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,2-Dibromoethane	ND		0.99	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,2-Dichloroethane	ND		0.99	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
1,4-Dichlorobenzene	ND		0.99	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
2-Butanone	ND		40	8.8	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
2-Hexanone	ND		20	3.9	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
4-Methyl-2-pentanone	ND		9.9	1.5	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Acetone	ND		15	2.4	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Benzene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Bromodichloromethane	ND		0.99	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Bromoform	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Bromomethane	ND		0.99	0.21	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Chlorobenzene	ND		2.0	0.40	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Chloroethane	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Chloroform	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Chloromethane	ND		0.99	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
cis-1,3-Dichloropropene	ND		0.99	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Ethylbenzene	ND		2.0	0.40	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Methylene Chloride	0.80	J	15	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Naphthalene	ND		9.9	1.8	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
o-Xylene	ND		2.0	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Styrene	ND		2.0	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Tetrahydrofuran	ND		99	20	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Toluene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
trans-1,3-Dichloropropene	ND		9.9	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Trichloroethene	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Vinyl acetate	ND		5.0	0.60	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1
Vinyl chloride	ND		2.0	0.30	ug/Kg	☼	07/08/16 16:50	07/14/16 19:37	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB21-SS-65

Lab Sample ID: 580-60880-13

Date Collected: 07/07/16 14:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		81 - 121	07/08/16 16:50	07/14/16 19:37	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/08/16 16:50	07/14/16 19:37	1
Dibromofluoromethane (Surr)	110		78 - 118	07/08/16 16:50	07/14/16 19:37	1
Toluene-d8 (Surr)	100		79 - 119	07/08/16 16:50	07/14/16 19:37	1
Trifluorotoluene (Surr)	98		52 - 152	07/08/16 16:50	07/14/16 19:37	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.1		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	10.9		0.1	0.1 %			07/08/16 17:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB-FD-070716

Lab Sample ID: 580-60880-14

Date Collected: 07/07/16 17:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,1,2,2-Tetrachloroethane	ND		3.8	0.85	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,1,2-Trichlorotrifluoroethane	ND		2.8	0.49	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,1-Dichloroethane	ND		0.95	0.18	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,1-Dichloroethene	ND		4.7	0.47	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,2,4-Trichlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,2-Dibromoethane	ND		0.95	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,2-Dichlorobenzene	ND		1.9	0.29	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,2-Dichloroethane	ND		0.95	0.14	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,3,5-Trimethylbenzene	ND		4.7	0.16	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
1,4-Dichlorobenzene	ND		0.95	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
2-Butanone	ND		38	8.4	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
2-Hexanone	ND		19	3.7	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
4-Methyl-2-pentanone	ND		9.5	1.4	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Acetone	ND		14	2.3	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Benzene	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Bromodichloromethane	ND		0.95	0.17	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Bromoform	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Bromomethane	ND		0.95	0.20	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Carbon tetrachloride	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Chlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Chloroform	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Chloromethane	ND		0.95	0.13	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
cis-1,2-Dichloroethene	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
cis-1,3-Dichloropropene	ND		0.95	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Dichlorodifluoromethane	ND		1.9	0.46	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Ethylbenzene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Hexachloro-1,3-butadiene	ND		2.8	0.57	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Methyl tert-butyl ether	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Methylene Chloride	1.6	J	14	0.23	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Naphthalene	ND		9.5	1.7	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Tetrachloroethene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Tetrahydrofuran	ND		95	19	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Toluene	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
trans-1,2-Dichloroethene	ND		1.9	0.38	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
trans-1,3-Dichloropropene	ND		9.5	1.3	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Trichloroethene	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Trichlorofluoromethane	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Vinyl acetate	ND		4.7	0.57	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1
Vinyl chloride	ND		1.9	0.28	ug/Kg	☼	07/08/16 16:50	07/14/16 20:04	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Client Sample ID: SB-FD-070716

Lab Sample ID: 580-60880-14

Date Collected: 07/07/16 17:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		81 - 121	07/08/16 16:50	07/14/16 20:04	1
4-Bromofluorobenzene (Surr)	99		79 - 120	07/08/16 16:50	07/14/16 20:04	1
Dibromofluoromethane (Surr)	104		78 - 118	07/08/16 16:50	07/14/16 20:04	1
Toluene-d8 (Surr)	102		79 - 119	07/08/16 16:50	07/14/16 20:04	1
Trifluorotoluene (Surr)	96		52 - 152	07/08/16 16:50	07/14/16 20:04	1

General Chemistry

Analyte	Result	Qualifier	RL	RL Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1	0.1 %			07/08/16 17:48	1
Percent Moisture	13.0		0.1	0.1 %			07/08/16 17:48	1

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-222355/1-A

Matrix: Solid

Analysis Batch: 222360

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 222355

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
2-Butanone	ND		40	8.9	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
2-Hexanone	ND		20	3.9	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Acetone	ND		15	2.4	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Benzene	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Bromoform	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Chloroform	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Naphthalene	ND		10	1.8	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Styrene	ND		2.0	0.20	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Toluene	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/14/16 12:21	07/14/16 12:14	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/14/16 12:21	07/14/16 12:14	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
 SDG: 580-60880-1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	103		81 - 121	07/14/16 12:21	07/14/16 12:14	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/14/16 12:21	07/14/16 12:14	1
Dibromofluoromethane (Surr)	106		78 - 118	07/14/16 12:21	07/14/16 12:14	1
Toluene-d8 (Surr)	102		79 - 119	07/14/16 12:21	07/14/16 12:14	1
Trifluorotoluene (Surr)	100		52 - 152	07/14/16 12:21	07/14/16 12:14	1

Lab Sample ID: LCS 580-222355/2-A
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222355
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	20.1	19.7		ug/Kg		98	63 - 129
1,1,2,2-Tetrachloroethane	20.0	20.1		ug/Kg		100	65 - 125
1,1,2-Trichloroethane	20.1	19.2		ug/Kg		96	69 - 117
1,1,2-Trichlorotrifluoroethane	20.2	18.9		ug/Kg		94	57 - 127
1,1-Dichloroethane	20.0	19.9		ug/Kg		99	70 - 128
1,1-Dichloroethene	20.2	19.8		ug/Kg		98	58 - 123
1,2,4-Trichlorobenzene	20.0	20.3		ug/Kg		102	61 - 130
1,2,4-Trimethylbenzene	20.0	20.6		ug/Kg		103	61 - 124
1,2-Dibromoethane	20.0	18.8		ug/Kg		94	69 - 119
1,2-Dichlorobenzene	20.0	20.8		ug/Kg		104	69 - 119
1,2-Dichloroethane	20.0	18.8		ug/Kg		94	71 - 121
1,3,5-Trimethylbenzene	20.0	21.0		ug/Kg		105	64 - 125
1,3-Dichlorobenzene	20.0	20.6		ug/Kg		103	70 - 119
1,4-Dichlorobenzene	20.1	20.3		ug/Kg		101	71 - 117
2-Butanone	100	90.7		ug/Kg		91	44 - 141
2-Hexanone	100	91.0		ug/Kg		91	56 - 134
4-Methyl-2-pentanone	100	93.6		ug/Kg		94	58 - 135
Acetone	100	95.6		ug/Kg		96	53 - 134
Benzene	20.1	19.3		ug/Kg		96	70 - 118
Bromodichloromethane	20.1	20.3		ug/Kg		101	75 - 119
Bromoform	20.1	18.3		ug/Kg		91	50 - 124
Bromomethane	20.0	21.4		ug/Kg		107	41 - 148
Carbon tetrachloride	20.0	19.7		ug/Kg		98	67 - 126
Chlorobenzene	20.1	19.3		ug/Kg		96	68 - 120
Chloroethane	20.0	21.6		ug/Kg		108	48 - 142
Chloroform	20.0	19.4		ug/Kg		97	72 - 125
Chloromethane	20.0	21.0		ug/Kg		105	46 - 136
cis-1,2-Dichloroethene	20.0	19.0		ug/Kg		95	70 - 119
cis-1,3-Dichloropropene	20.1	19.2		ug/Kg		96	69 - 129
Dibromochloromethane	20.0	18.9		ug/Kg		95	64 - 129
Dichlorodifluoromethane	20.0	22.9		ug/Kg		114	38 - 140
Ethylbenzene	20.1	19.2		ug/Kg		95	66 - 119
Hexachloro-1,3-butadiene	20.0	19.9		ug/Kg		100	58 - 128
Methyl tert-butyl ether	20.0	19.6		ug/Kg		98	58 - 134
Methylene Chloride	20.1	18.8		ug/Kg		94	57 - 129
m-Xylene & p-Xylene	20.0	18.9		ug/Kg		94	69 - 126
Naphthalene	20.0	18.4		ug/Kg		92	45 - 141
o-Xylene	20.0	19.7		ug/Kg		99	66 - 127
Styrene	20.0	20.1		ug/Kg		100	68 - 120
Tetrachloroethene	20.1	19.7		ug/Kg		98	63 - 123
Tetrahydrofuran	40.0	34.4	J	ug/Kg		86	49 - 144
Toluene	20.0	19.2		ug/Kg		96	67 - 119
trans-1,2-Dichloroethene	20.0	19.6		ug/Kg		98	63 - 122

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-222355/2-A
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222355

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
trans-1,3-Dichloropropene	20.0	19.8		ug/Kg		99	65 - 129
Trichloroethene	20.0	19.5		ug/Kg		97	68 - 118
Trichlorofluoromethane	20.0	21.5		ug/Kg		107	59 - 137
Vinyl acetate	50.0	47.7		ug/Kg		95	52 - 150
Vinyl chloride	20.0	22.6		ug/Kg		113	43 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		81 - 121
4-Bromofluorobenzene (Surr)	100		79 - 120
Dibromofluoromethane (Surr)	106		78 - 118
Toluene-d8 (Surr)	99		79 - 119
Trifluorotoluene (Surr)	97		52 - 152

Lab Sample ID: 580-60880-7 MS
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: SB21-SS-35
Prep Type: Total/NA
Prep Batch: 222355

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	ND		20.5	13.3		ug/Kg	☼	65	63 - 129
1,1,2,2-Tetrachloroethane	ND	F1	20.5	12.2	F1	ug/Kg	☼	60	65 - 125
1,1,2-Trichloroethane	ND	F1	20.5	11.7	F1	ug/Kg	☼	57	69 - 117
1,1,2-Trichlorotrifluoroethane	ND		20.6	14.2		ug/Kg	☼	69	57 - 127
1,1-Dichloroethane	ND	F1	20.5	13.0	F1	ug/Kg	☼	64	70 - 128
1,1-Dichloroethene	ND		20.6	14.0		ug/Kg	☼	68	58 - 123
1,2,4-Trichlorobenzene	ND	F1	20.5	9.98	F1	ug/Kg	☼	49	61 - 130
1,2,4-Trimethylbenzene	ND	F1	20.5	11.9	F1	ug/Kg	☼	58	61 - 124
1,2-Dibromoethane	ND	F1	20.5	11.6	F1	ug/Kg	☼	57	69 - 119
1,2-Dichlorobenzene	ND	F1	20.5	11.9	F1	ug/Kg	☼	58	69 - 119
1,2-Dichloroethane	ND	F1	20.5	11.9	F1	ug/Kg	☼	58	71 - 121
1,3,5-Trimethylbenzene	ND	F1	20.5	12.1	F1	ug/Kg	☼	59	64 - 125
1,3-Dichlorobenzene	ND	F1	20.5	11.7	F1	ug/Kg	☼	57	70 - 119
1,4-Dichlorobenzene	ND	F1	20.5	11.2	F1	ug/Kg	☼	55	71 - 117
2-Butanone	ND		102	55.5		ug/Kg	☼	54	44 - 141
2-Hexanone	ND	F1	102	56.4	F1	ug/Kg	☼	55	56 - 134
4-Methyl-2-pentanone	ND		102	59.1		ug/Kg	☼	58	58 - 135
Acetone	ND		102	70.8		ug/Kg	☼	69	53 - 134
Benzene	ND	F1	20.5	12.8	F1	ug/Kg	☼	62	70 - 118
Bromodichloromethane	ND	F1	20.5	12.3	F1	ug/Kg	☼	60	75 - 119
Bromoform	ND		20.5	11.1		ug/Kg	☼	54	50 - 124
Bromomethane	ND		20.5	13.2		ug/Kg	☼	65	41 - 148
Carbon tetrachloride	ND		20.5	13.8		ug/Kg	☼	67	67 - 126
Chlorobenzene	ND	F1	20.5	11.8	F1	ug/Kg	☼	57	68 - 120
Chloroethane	ND	F2	20.5	12.1		ug/Kg	☼	59	48 - 142
Chloroform	ND	F1	20.5	12.5	F1	ug/Kg	☼	61	72 - 125
Chloromethane	ND		20.5	13.4		ug/Kg	☼	65	46 - 136
cis-1,2-Dichloroethene	ND	F1	20.5	12.5	F1	ug/Kg	☼	61	70 - 119
cis-1,3-Dichloropropene	ND	F1	20.5	11.6	F1	ug/Kg	☼	57	69 - 129
Dibromochloromethane	ND	F1	20.5	11.3	F1	ug/Kg	☼	55	64 - 129

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-60880-7 MS
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: SB21-SS-35
Prep Type: Total/NA
Prep Batch: 222355

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Dichlorodifluoromethane	ND		20.5	16.1		ug/Kg	☼	78	38 - 140
Ethylbenzene	ND	F1	20.5	12.1	F1	ug/Kg	☼	59	66 - 119
Hexachloro-1,3-butadiene	ND	F1	20.5	10.2	F1	ug/Kg	☼	50	58 - 128
Methyl tert-butyl ether	ND	F1	20.5	11.6	F1	ug/Kg	☼	57	58 - 134
Methylene Chloride	ND		20.6	13.5	J	ug/Kg	☼	66	57 - 129
m-Xylene & p-Xylene	ND	F1	20.5	11.7	F1	ug/Kg	☼	57	69 - 126
Naphthalene	ND		20.5	10.3		ug/Kg	☼	50	45 - 141
o-Xylene	ND	F1	20.5	12.2	F1	ug/Kg	☼	59	66 - 127
Styrene	ND	F1	20.5	11.8	F1	ug/Kg	☼	58	68 - 120
Tetrachloroethene	ND	F1	20.5	12.3	F1	ug/Kg	☼	60	63 - 123
Tetrahydrofuran	ND		40.9	25.2	J	ug/Kg	☼	62	49 - 144
Toluene	ND	F1	20.5	12.2	F1	ug/Kg	☼	60	67 - 119
trans-1,2-Dichloroethene	ND		20.5	13.2		ug/Kg	☼	65	63 - 122
trans-1,3-Dichloropropene	ND	F1	20.5	11.4	F1	ug/Kg	☼	56	65 - 129
Trichloroethene	ND	F1	20.5	12.6	F1	ug/Kg	☼	62	68 - 118
Trichlorofluoromethane	ND		20.5	14.1		ug/Kg	☼	69	59 - 137
Vinyl acetate	ND	F1	51.1	22.5	F1	ug/Kg	☼	44	52 - 150
Vinyl chloride	ND		20.5	14.0		ug/Kg	☼	68	43 - 131

Surrogate	%Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	112		81 - 121
4-Bromofluorobenzene (Surr)	100		79 - 120
Dibromofluoromethane (Surr)	109		78 - 118
Toluene-d8 (Surr)	99		79 - 119
Trifluorotoluene (Surr)	98		52 - 152

Lab Sample ID: 580-60880-7 MSD
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: SB21-SS-35
Prep Type: Total/NA
Prep Batch: 222355

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND		19.9	14.8		ug/Kg	☼	74	63 - 129	11	40
1,1,2,2-Tetrachloroethane	ND	F1	19.9	14.7		ug/Kg	☼	74	65 - 125	18	40
1,1,2-Trichloroethane	ND	F1	19.9	13.7		ug/Kg	☼	69	69 - 117	16	40
1,1,2-Trichlorotrifluoroethane	ND		20.0	14.8		ug/Kg	☼	74	57 - 127	5	40
1,1-Dichloroethane	ND	F1	19.9	14.8		ug/Kg	☼	74	70 - 128	12	40
1,1-Dichloroethene	ND		20.0	15.5		ug/Kg	☼	77	58 - 123	10	40
1,2,4-Trichlorobenzene	ND	F1	19.9	12.8		ug/Kg	☼	65	61 - 130	25	40
1,2,4-Trimethylbenzene	ND	F1	19.9	14.7		ug/Kg	☼	74	61 - 124	21	40
1,2-Dibromoethane	ND	F1	19.9	13.5	F1	ug/Kg	☼	68	69 - 119	14	40
1,2-Dichlorobenzene	ND	F1	19.9	14.5		ug/Kg	☼	73	69 - 119	20	40
1,2-Dichloroethane	ND	F1	19.9	13.6	F1	ug/Kg	☼	68	71 - 121	14	40
1,3,5-Trimethylbenzene	ND	F1	19.9	15.1		ug/Kg	☼	76	64 - 125	22	40
1,3-Dichlorobenzene	ND	F1	19.9	14.5		ug/Kg	☼	73	70 - 119	22	40
1,4-Dichlorobenzene	ND	F1	19.9	14.2		ug/Kg	☼	71	71 - 117	24	40
2-Butanone	ND		99.3	61.0		ug/Kg	☼	61	44 - 141	9	40
2-Hexanone	ND	F1	99.3	66.8		ug/Kg	☼	67	56 - 134	17	40
4-Methyl-2-pentanone	ND		99.3	69.3		ug/Kg	☼	70	58 - 135	16	40

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-60880-7 MSD
Matrix: Solid
Analysis Batch: 222360

Client Sample ID: SB21-SS-35
Prep Type: Total/NA
Prep Batch: 222355

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Acetone	ND		99.3	70.9		ug/Kg	☼	71	53 - 134	0	40
Benzene	ND	F1	19.9	14.3		ug/Kg	☼	72	70 - 118	11	40
Bromodichloromethane	ND	F1	19.9	14.2	F1	ug/Kg	☼	71	75 - 119	14	40
Bromoform	ND		19.9	12.9		ug/Kg	☼	64	50 - 124	15	40
Bromomethane	ND		19.9	15.3		ug/Kg	☼	77	41 - 148	15	40
Carbon tetrachloride	ND		19.9	15.2		ug/Kg	☼	76	67 - 126	10	40
Chlorobenzene	ND	F1	20.0	14.2		ug/Kg	☼	71	68 - 120	19	40
Chloroethane	ND	F2	19.9	20.1	F2	ug/Kg	☼	101	48 - 142	50	40
Chloroform	ND	F1	19.9	14.6		ug/Kg	☼	73	72 - 125	16	40
Chloromethane	ND		19.9	15.2		ug/Kg	☼	76	46 - 136	12	40
cis-1,2-Dichloroethene	ND	F1	19.9	14.7		ug/Kg	☼	74	70 - 119	16	40
cis-1,3-Dichloropropene	ND	F1	19.9	13.9		ug/Kg	☼	70	69 - 129	17	40
Dibromochloromethane	ND	F1	19.9	13.3		ug/Kg	☼	67	64 - 129	17	40
Dichlorodifluoromethane	ND		19.9	16.5		ug/Kg	☼	83	38 - 140	3	40
Ethylbenzene	ND	F1	19.9	14.3		ug/Kg	☼	72	66 - 119	17	40
Hexachloro-1,3-butadiene	ND	F1	19.9	13.8		ug/Kg	☼	69	58 - 128	30	40
Methyl tert-butyl ether	ND	F1	19.9	13.3		ug/Kg	☼	67	58 - 134	14	40
Methylene Chloride	ND		20.0	15.1		ug/Kg	☼	76	57 - 129	11	40
m-Xylene & p-Xylene	ND	F1	19.9	14.1		ug/Kg	☼	71	69 - 126	18	40
Naphthalene	ND		19.9	12.8		ug/Kg	☼	65	45 - 141	22	40
o-Xylene	ND	F1	19.9	14.3		ug/Kg	☼	72	66 - 127	16	40
Styrene	ND	F1	19.9	14.2		ug/Kg	☼	72	68 - 120	19	40
Tetrachloroethene	ND	F1	19.9	15.0		ug/Kg	☼	75	63 - 123	20	40
Tetrahydrofuran	ND		39.7	28.1	J	ug/Kg	☼	71	49 - 144	11	40
Toluene	ND	F1	19.9	14.3		ug/Kg	☼	72	67 - 119	16	40
trans-1,2-Dichloroethene	ND		19.9	14.7		ug/Kg	☼	74	63 - 122	11	40
trans-1,3-Dichloropropene	ND	F1	19.9	13.6		ug/Kg	☼	68	65 - 129	18	40
Trichloroethene	ND	F1	19.9	14.3		ug/Kg	☼	72	68 - 118	12	40
Trichlorofluoromethane	ND		19.9	15.1		ug/Kg	☼	76	59 - 137	7	40
Vinyl acetate	ND	F1	49.7	27.4		ug/Kg	☼	55	52 - 150	19	40
Vinyl chloride	ND		19.9	16.1		ug/Kg	☼	81	43 - 131	14	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		81 - 121
4-Bromofluorobenzene (Surr)	101		79 - 120
Dibromofluoromethane (Surr)	105		78 - 118
Toluene-d8 (Surr)	101		79 - 119
Trifluorotoluene (Surr)	96		52 - 152

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-05
Date Collected: 07/07/16 10:10
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-05
Date Collected: 07/07/16 10:10
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-1
Matrix: Solid
Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 13:09	W1T	TAL SEA

Client Sample ID: SB21-SS-10
Date Collected: 07/07/16 10:30
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-10
Date Collected: 07/07/16 10:30
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-2
Matrix: Solid
Percent Solids: 87.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 13:37	W1T	TAL SEA

Client Sample ID: SB21-SS-15
Date Collected: 07/07/16 10:35
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-15
Date Collected: 07/07/16 10:35
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-3
Matrix: Solid
Percent Solids: 95.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 14:04	W1T	TAL SEA

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-20

Date Collected: 07/07/16 10:45
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-20

Date Collected: 07/07/16 10:45
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-4

Matrix: Solid
Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 14:32	W1T	TAL SEA

Client Sample ID: SB21-SS-25

Date Collected: 07/07/16 10:50
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-25

Date Collected: 07/07/16 10:50
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-5

Matrix: Solid
Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 15:00	W1T	TAL SEA

Client Sample ID: SB21-SS-30

Date Collected: 07/07/16 12:30
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-30

Date Collected: 07/07/16 12:30
Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-6

Matrix: Solid
Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 15:27	W1T	TAL SEA

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-35

Date Collected: 07/07/16 12:35

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-35

Date Collected: 07/07/16 12:35

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-7

Matrix: Solid

Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 15:55	W1T	TAL SEA

Client Sample ID: SB21-SS-40

Date Collected: 07/07/16 13:00

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-40

Date Collected: 07/07/16 13:00

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-8

Matrix: Solid

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 17:18	W1T	TAL SEA

Client Sample ID: SB21-SS-45

Date Collected: 07/07/16 13:05

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-45

Date Collected: 07/07/16 13:05

Date Received: 07/08/16 15:45

Lab Sample ID: 580-60880-9

Matrix: Solid

Percent Solids: 77.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 17:46	W1T	TAL SEA

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-50

Lab Sample ID: 580-60880-10

Date Collected: 07/07/16 13:30

Matrix: Solid

Date Received: 07/08/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-50

Lab Sample ID: 580-60880-10

Date Collected: 07/07/16 13:30

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 18:14	W1T	TAL SEA

Client Sample ID: SB21-SS-55

Lab Sample ID: 580-60880-11

Date Collected: 07/07/16 13:35

Matrix: Solid

Date Received: 07/08/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-55

Lab Sample ID: 580-60880-11

Date Collected: 07/07/16 13:35

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 18:41	W1T	TAL SEA

Client Sample ID: SB21-SS-60

Lab Sample ID: 580-60880-12

Date Collected: 07/07/16 13:55

Matrix: Solid

Date Received: 07/08/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-60

Lab Sample ID: 580-60880-12

Date Collected: 07/07/16 13:55

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 19:09	W1T	TAL SEA

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Client Sample ID: SB21-SS-65

Lab Sample ID: 580-60880-13

Date Collected: 07/07/16 14:00

Matrix: Solid

Date Received: 07/08/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB21-SS-65

Lab Sample ID: 580-60880-13

Date Collected: 07/07/16 14:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 19:37	W1T	TAL SEA

Client Sample ID: SB-FD-070716

Lab Sample ID: 580-60880-14

Date Collected: 07/07/16 17:00

Matrix: Solid

Date Received: 07/08/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	221933	07/08/16 17:48	L1I	TAL SEA

Client Sample ID: SB-FD-070716

Lab Sample ID: 580-60880-14

Date Collected: 07/07/16 17:00

Matrix: Solid

Date Received: 07/08/16 15:45

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			222355	07/08/16 16:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	222360	07/14/16 20:04	W1T	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	WA100007	11-05-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: CH2M Hill, Inc.
Project/Site: Freeman WA-Grain Handling Facility

TestAmerica Job ID: 580-60880-1
SDG: 580-60880-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-60880-1	SB21-SS-05	Solid	07/07/16 10:10	07/08/16 15:45
580-60880-2	SB21-SS-10	Solid	07/07/16 10:30	07/08/16 15:45
580-60880-3	SB21-SS-15	Solid	07/07/16 10:35	07/08/16 15:45
580-60880-4	SB21-SS-20	Solid	07/07/16 10:45	07/08/16 15:45
580-60880-5	SB21-SS-25	Solid	07/07/16 10:50	07/08/16 15:45
580-60880-6	SB21-SS-30	Solid	07/07/16 12:30	07/08/16 15:45
580-60880-7	SB21-SS-35	Solid	07/07/16 12:35	07/08/16 15:45
580-60880-8	SB21-SS-40	Solid	07/07/16 13:00	07/08/16 15:45
580-60880-9	SB21-SS-45	Solid	07/07/16 13:05	07/08/16 15:45
580-60880-10	SB21-SS-50	Solid	07/07/16 13:30	07/08/16 15:45
580-60880-11	SB21-SS-55	Solid	07/07/16 13:35	07/08/16 15:45
580-60880-12	SB21-SS-60	Solid	07/07/16 13:55	07/08/16 15:45
580-60880-13	SB21-SS-65	Solid	07/07/16 14:00	07/08/16 15:45
580-60880-14	SB-FD-070716	Solid	07/07/16 17:00	07/08/16 15:45

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302
 9405 SW Nimbus Ave., Beaverton, OR 97008-7145
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

509-924-9200 FAX 924-9290
 503-906-9200 FAX 906-9210
 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: **60880**

CLIENT: CH2M		INVOICE TO: UPRR		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 <small>STD.</small> Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 <small>STD.</small> <input type="checkbox"/> OTHER Specify: * Turnaround Requests less than standard may incur Rush Charges.					
REPORT TO: Steve Demus ADDRESS: 999 W. Riverside Ave., Ste 500 Spokane, WA 99201		P.O. NUMBER:							
PHONE: 509-944-1785 FAX: 509-944-1785 email: sdemus@ch2m.com		PRESERVATIVE							
PROJECT NAME: UPRR Freeman		REQUESTED ANALYSES							
PROJECT NUMBER:		MeOH							
SAMPLED BY: Ruben Greer									
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	Stubs	Dry Weight			MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1 SB15-SS-05	7-7-16 / 1010	↓	↓			S	4		
2 SB15-SS-10	/ 1030	↓	↓				4		
3 SB15-SS-15	/ 1035	↓	↓				4		
4 SB15-SS-20	/ 1045	↓	↓				4		
5 SB15-SS-25	/ 1050	↓	↓				4		
6 SB15-SS-30	/ 1230	↓	↓				4		
7 SB15-SS-35	/ 1235	↓	↓				10	Lab QC	
8 SB15-SS-40	/ 1300	↓	↓				4		
9 SB15-SS-45	/ 1305	↓	↓				4		
10 SB15-SS-50	/ 1330	↓	↓				4		



TB Cooler **122** Cont **24** Uncl **26**
 Cooler Dsc **med red** @ Lab **1113**
 WetPacks Packing
 AS CS

RELEASED BY: [Signature]	FIRM: CH2M	DATE: 7-8-16	TIME: 10:00	RECEIVED BY: [Signature]	FIRM: TA/Sea	DATE: 7/8/16	TIME: 1545
PRINT NAME: Steve Demus				PRINT NAME: Ruben Greer			
RELEASED BY:	FIRM:	DATE:	TIME:	RECEIVED BY:	FIRM:	DATE:	TIME:
PRINT NAME:				PRINT NAME:			

ADDITIONAL REMARKS: _____

TEMP: _____ PAGE 1 OF 2

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302
 9405 SW Nimbus Ave., Beaverton, OR 97008-7145
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

509-924-9200 FAX 924-9290
 503-906-9200 FAX 906-9210
 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: **60880**

CLIENT: CH2M		INVOICE TO: UPRR		TURNAROUND REQUEST in Business Days * Organic & Inorganic Analyses <input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> <1 STD. Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD. <input type="checkbox"/> OTHER Specify: _____ * Turnaround Requests less than standard may incur Rush Charges.							
REPORT TO: Steve Demus ADDRESS: 999 W. Riverside Ave., Ste 500 Spokane, WA 99201		P.O. NUMBER:									
PHONE: 509-464-7222 FAX: email: sdemus@ch2m.com		PROJECT NAME: UPRR Freeman									
PROJECT NUMBER:		PRESERVATIVE									
SAMPLED BY: Reuben Greer		REQUESTED ANALYSES									
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	Wet	Dry Weight					MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
-11 1 SB15-SS-55	7-7-16 / 1335	↓	↓					S	4		
-72 2 SB15-SS-60	↓ / 1355	↓	↓					S	4		
-73 3 SB15-SS-65	↓ / 1400	↓	↓					S	4		
-74 4 SB-FD-070716	↓ / 17:00	↓	↓					S	4		
5											
6											
7											
8											
9											
10											
RELEASED BY: Steve Demus	FIRM: CH2M	DATE: 7-8-16	TIME: 10:00	RECEIVED BY: [Signature]	FIRM: [Signature]	DATE: 7/8/16	TIME: 15:15				
RELEASED BY:	FIRM:	DATE:	TIME:	RECEIVED BY:	FIRM:	DATE:	TIME:				
ADDITIONAL REMARKS:							TEMP:				
							PAGE	2 of 2			

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-60880-1

SDG Number: 580-60880-1

Login Number: 60880

List Number: 1

Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-61167-1
Client Project/Site: UPRR Freeman

For:
CH2M Hill, Inc.
2020 SW 4th Ave
Suite 300
Portland, Oregon 97201

Attn: nathan williams



Authorized for release by:
7/28/2016 4:48:02 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Job ID: 580-61167-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-61167-1

Comments

No additional comments.

Receipt

The samples were received on 7/22/2016 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-223024 recovered outside acceptance criteria, low biased, for Naphthalene. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8260C: The following samples were analyzed outside of analytical holding time due to sample being received out of hold for method 5035 :SB22-SS-05 (580-61167-1), SB22-SS-20 (580-61167-2), SB22-SS-25 (580-61167-3), SB22-SS-30 (580-61167-4) and SB22-SS-35 (580-61167-5), SBF01-SS (580-61167-18).

Method(s) 8260C: Internal standard responses were outside of acceptance limits for the following sample: SB23-SS-35 (580-61167-12). The sample could not be re-analyzed to confirm if the deficiency was due to matrix interference because the second sample vial provided by the client was found to be broken (due to water expansion in the frozen vial). The internal standard response was below method acceptance limits, indicating a high bias for target analytes. All targets, with the exception of vinyl chloride were non-detects. All associated surrogates met method acceptance limits

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-05

Lab Sample ID: 580-61167-1

Date Collected: 07/20/16 08:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 95.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,1,1,2,2-Tetrachloroethane	ND	H	3.3	0.75	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,1,1,2-Trichloroethane	ND	H	1.7	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,1,1,2-Trichlorotrifluoroethane	ND	H	2.5	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,1-Dichloroethane	ND	H	0.83	0.16	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,1-Dichloroethene	ND	H	4.2	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,2,4-Trichlorobenzene	ND	H	1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,2,4-Trimethylbenzene	ND	H	1.7	0.13	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,2-Dibromoethane	ND	H	0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,2-Dichlorobenzene	ND	H	1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,2-Dichloroethane	ND	H	0.83	0.13	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,3,5-Trimethylbenzene	ND	H	4.2	0.14	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,3-Dichlorobenzene	ND	H	1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
1,4-Dichlorobenzene	0.17	J H	0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
2-Butanone	ND	H	33	7.4	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
2-Hexanone	ND	H	17	3.3	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
4-Methyl-2-pentanone	ND	H	8.3	1.3	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Acetone	ND	H	13	2.0	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Benzene	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Bromodichloromethane	ND	H	0.83	0.15	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Bromoform	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Bromomethane	ND	H	0.83	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Carbon tetrachloride	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Chlorobenzene	ND	H	1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Chloroethane	ND	H	1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Chloroform	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Chloromethane	ND	H	0.83	0.12	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
cis-1,2-Dichloroethene	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
cis-1,3-Dichloropropene	ND	H	0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Dibromochloromethane	ND	H	1.7	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Dichlorodifluoromethane	ND	H	1.7	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Ethylbenzene	ND	H	1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Hexachloro-1,3-butadiene	ND	H	2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Methyl tert-butyl ether	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Methylene Chloride	1.2	J H	13	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
m-Xylene & p-Xylene	ND	H	1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Naphthalene	ND	H	8.3	1.5	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
o-Xylene	ND	H	1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Styrene	ND	H	1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Tetrachloroethene	ND	H	1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Tetrahydrofuran	ND	H	83	17	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Toluene	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
trans-1,2-Dichloroethene	ND	H	1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
trans-1,3-Dichloropropene	ND	H	8.3	1.2	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Trichloroethene	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Trichlorofluoromethane	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Vinyl acetate	ND	H	4.2	0.50	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1
Vinyl chloride	ND	H	1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 19:33	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-05

Lab Sample ID: 580-61167-1

Date Collected: 07/20/16 08:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 95.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		81 - 121	07/22/16 09:50	07/24/16 19:33	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/22/16 09:50	07/24/16 19:33	1
Dibromofluoromethane (Surr)	102		78 - 118	07/22/16 09:50	07/24/16 19:33	1
Toluene-d8 (Surr)	101		79 - 119	07/22/16 09:50	07/24/16 19:33	1
Trifluorotoluene (Surr)	105		52 - 152	07/22/16 09:50	07/24/16 19:33	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.9		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	4.1		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-20

Lab Sample ID: 580-61167-2

Date Collected: 07/20/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 64.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,1,1,2,2-Tetrachloroethane	ND	H	5.8	1.3	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,1,1,2-Trichloroethane	ND	H	2.9	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,1,1,2-Trichlorotrifluoroethane	ND	H	4.3	0.75	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,1-Dichloroethane	ND	H	1.4	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,1-Dichloroethene	ND	H	7.2	0.72	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,2,4-Trichlorobenzene	ND	H	2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,2,4-Trimethylbenzene	ND	H	2.9	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,2-Dibromoethane	ND	H	1.4	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,2-Dichlorobenzene	ND	H	2.9	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,2-Dichloroethane	ND	H	1.4	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,3,5-Trimethylbenzene	ND	H	7.2	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,3-Dichlorobenzene	ND	H	2.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
1,4-Dichlorobenzene	ND	H	1.4	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
2-Butanone	ND	H	58	13	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
2-Hexanone	ND	H	29	5.6	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
4-Methyl-2-pentanone	ND	H	14	2.2	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Acetone	4.6	J H	22	3.5	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Benzene	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Bromodichloromethane	ND	H	1.4	0.26	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Bromoform	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Bromomethane	ND	H	1.4	0.30	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Carbon tetrachloride	2.5	J H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Chlorobenzene	ND	H	2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Chloroethane	ND	H	2.9	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Chloroform	2.2	J H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Chloromethane	ND	H	1.4	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
cis-1,2-Dichloroethene	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
cis-1,3-Dichloropropene	ND	H	1.4	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Dibromochloromethane	ND	H	2.9	0.39	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Dichlorodifluoromethane	ND	H	2.9	0.71	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Ethylbenzene	ND	H	2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Hexachloro-1,3-butadiene	ND	H	4.3	0.86	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Methyl tert-butyl ether	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Methylene Chloride	2.6	J H	22	0.35	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
m-Xylene & p-Xylene	ND	H	2.9	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Naphthalene	ND	H	14	2.6	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
o-Xylene	ND	H	2.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Styrene	ND	H	2.9	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Tetrachloroethene	ND	H	2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Tetrahydrofuran	ND	H	140	30	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Toluene	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
trans-1,2-Dichloroethene	ND	H	2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
trans-1,3-Dichloropropene	ND	H	14	2.0	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Trichloroethene	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Trichlorofluoromethane	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Vinyl acetate	ND	H	7.2	0.86	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1
Vinyl chloride	ND	H	2.9	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:01	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-20

Lab Sample ID: 580-61167-2

Date Collected: 07/20/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 64.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		81 - 121	07/22/16 09:50	07/24/16 20:01	1
4-Bromofluorobenzene (Surr)	105		79 - 120	07/22/16 09:50	07/24/16 20:01	1
Dibromofluoromethane (Surr)	102		78 - 118	07/22/16 09:50	07/24/16 20:01	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/24/16 20:01	1
Trifluorotoluene (Surr)	108		52 - 152	07/22/16 09:50	07/24/16 20:01	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	64.7		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	35.3		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-25

Lab Sample ID: 580-61167-3

Date Collected: 07/20/16 09:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 61.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,1,1,2,2-Tetrachloroethane	ND	H	6.4	1.4	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,1,1,2-Trichloroethane	ND	H	3.2	0.40	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,1,1,2-Trichlorotrifluoroethane	ND	H	4.8	0.83	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,1-Dichloroethane	ND	H	1.6	0.30	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,1-Dichloroethene	ND	H	8.0	0.80	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,2,4-Trichlorobenzene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,2,4-Trimethylbenzene	ND	H	3.2	0.26	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,2-Dibromoethane	ND	H	1.6	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,2-Dichlorobenzene	ND	H	3.2	0.49	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,2-Dichloroethane	ND	H	1.6	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,3,5-Trimethylbenzene	ND	H	8.0	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,3-Dichlorobenzene	ND	H	3.2	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
1,4-Dichlorobenzene	ND	H	1.6	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
2-Butanone	ND	H	64	14	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
2-Hexanone	ND	H	32	6.2	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
4-Methyl-2-pentanone	ND	H	16	2.4	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Acetone	ND	H	24	3.8	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Benzene	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Bromodichloromethane	ND	H	1.6	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Bromoform	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Bromomethane	ND	H	1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Carbon tetrachloride	7.2	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Chlorobenzene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Chloroethane	ND	H	3.2	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Chloroform	6.1	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Chloromethane	ND	H	1.6	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
cis-1,2-Dichloroethene	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
cis-1,3-Dichloropropene	ND	H	1.6	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Dibromochloromethane	ND	H	3.2	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Dichlorodifluoromethane	ND	H	3.2	0.78	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Ethylbenzene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Hexachloro-1,3-butadiene	ND	H	4.8	0.96	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Methyl tert-butyl ether	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Methylene Chloride	2.5	J H	24	0.38	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
m-Xylene & p-Xylene	ND	H	3.2	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Naphthalene	ND	H	16	2.9	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
o-Xylene	ND	H	3.2	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Styrene	ND	H	3.2	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Tetrachloroethene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Tetrahydrofuran	ND	H	160	33	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Toluene	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
trans-1,2-Dichloroethene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
trans-1,3-Dichloropropene	ND	H	16	2.2	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Trichloroethene	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Trichlorofluoromethane	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Vinyl acetate	ND	H	8.0	0.96	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1
Vinyl chloride	ND	H	3.2	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 20:29	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-25

Lab Sample ID: 580-61167-3

Date Collected: 07/20/16 09:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 61.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		81 - 121	07/22/16 09:50	07/24/16 20:29	1
4-Bromofluorobenzene (Surr)	105		79 - 120	07/22/16 09:50	07/24/16 20:29	1
Dibromofluoromethane (Surr)	104		78 - 118	07/22/16 09:50	07/24/16 20:29	1
Toluene-d8 (Surr)	98		79 - 119	07/22/16 09:50	07/24/16 20:29	1
Trifluorotoluene (Surr)	109		52 - 152	07/22/16 09:50	07/24/16 20:29	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	61.3		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	38.7		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-30

Lab Sample ID: 580-61167-4

Date Collected: 07/20/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 65.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,1,1,2,2-Tetrachloroethane	ND	H	5.6	1.3	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,1,1,2-Trichloroethane	ND	H	2.8	0.35	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,1,1,2-Trichlorotrifluoroethane	ND	H	4.2	0.73	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,1-Dichloroethane	ND	H	1.4	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,1-Dichloroethene	ND	H	7.0	0.70	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,2,4-Trichlorobenzene	ND	H	2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,2,4-Trimethylbenzene	ND	H	2.8	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,2-Dibromoethane	ND	H	1.4	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,2-Dichlorobenzene	ND	H	2.8	0.43	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,2-Dichloroethane	ND	H	1.4	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,3,5-Trimethylbenzene	ND	H	7.0	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,3-Dichlorobenzene	ND	H	2.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
1,4-Dichlorobenzene	ND	H	1.4	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
2-Butanone	ND	H	56	12	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
2-Hexanone	ND	H	28	5.5	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
4-Methyl-2-pentanone	ND	H	14	2.1	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Acetone	ND	H	21	3.4	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Benzene	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Bromodichloromethane	ND	H	1.4	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Bromoform	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Bromomethane	ND	H	1.4	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Carbon tetrachloride	9.1	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Chlorobenzene	ND	H	2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Chloroethane	ND	H	2.8	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Chloroform	7.4	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Chloromethane	ND	H	1.4	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
cis-1,2-Dichloroethene	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
cis-1,3-Dichloropropene	ND	H	1.4	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Dibromochloromethane	ND	H	2.8	0.38	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Dichlorodifluoromethane	ND	H	2.8	0.69	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Ethylbenzene	ND	H	2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Hexachloro-1,3-butadiene	ND	H	4.2	0.84	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Methyl tert-butyl ether	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Methylene Chloride	1.3	J H	21	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
m-Xylene & p-Xylene	ND	H	2.8	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Naphthalene	ND	H	14	2.5	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
o-Xylene	ND	H	2.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Styrene	ND	H	2.8	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Tetrachloroethene	ND	H	2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Tetrahydrofuran	ND	H	140	29	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Toluene	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
trans-1,2-Dichloroethene	ND	H	2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
trans-1,3-Dichloropropene	ND	H	14	2.0	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Trichloroethene	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Trichlorofluoromethane	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Vinyl acetate	ND	H	7.0	0.84	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1
Vinyl chloride	ND	H	2.8	0.42	ug/Kg	☼	07/22/16 09:50	07/24/16 20:57	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-30

Lab Sample ID: 580-61167-4

Date Collected: 07/20/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 65.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		81 - 121	07/22/16 09:50	07/24/16 20:57	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/24/16 20:57	1
Dibromofluoromethane (Surr)	103		78 - 118	07/22/16 09:50	07/24/16 20:57	1
Toluene-d8 (Surr)	100		79 - 119	07/22/16 09:50	07/24/16 20:57	1
Trifluorotoluene (Surr)	108		52 - 152	07/22/16 09:50	07/24/16 20:57	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	65.2		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	34.8		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-35

Lab Sample ID: 580-61167-5

Date Collected: 07/20/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,1,1,2,2-Tetrachloroethane	ND	H	4.8	1.1	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,1,2-Trichloroethane	ND	H	2.4	0.30	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,1,2-Trichlorotrifluoroethane	ND	H	3.6	0.62	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,1-Dichloroethane	ND	H	1.2	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,1-Dichloroethene	ND	H	6.0	0.60	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,2,4-Trichlorobenzene	ND	H	2.4	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,2,4-Trimethylbenzene	ND	H	2.4	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,2-Dibromoethane	ND	H	1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,2-Dichlorobenzene	ND	H	2.4	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,2-Dichloroethane	ND	H	1.2	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,3,5-Trimethylbenzene	ND	H	6.0	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,3-Dichlorobenzene	ND	H	2.4	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
1,4-Dichlorobenzene	ND	H	1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
2-Butanone	ND	H	48	11	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
2-Hexanone	ND	H	24	4.7	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
4-Methyl-2-pentanone	ND	H	12	1.8	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Acetone	6.6	J H	18	2.9	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Benzene	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Bromodichloromethane	ND	H	1.2	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Bromoform	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Bromomethane	ND	H	1.2	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Carbon tetrachloride	20	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Chlorobenzene	ND	H	2.4	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Chloroethane	ND	H	2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Chloroform	8.3	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Chloromethane	ND	H	1.2	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
cis-1,2-Dichloroethene	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
cis-1,3-Dichloropropene	ND	H	1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Dibromochloromethane	ND	H	2.4	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Dichlorodifluoromethane	ND	H	2.4	0.59	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Ethylbenzene	ND	H	2.4	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Hexachloro-1,3-butadiene	ND	H	3.6	0.72	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Methyl tert-butyl ether	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Methylene Chloride	1.4	J H	18	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
m-Xylene & p-Xylene	ND	H	2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Naphthalene	ND	H	12	2.2	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
o-Xylene	ND	H	2.4	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Styrene	ND	H	2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Tetrachloroethene	ND	H	2.4	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Tetrahydrofuran	ND	H	120	25	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Toluene	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
trans-1,2-Dichloroethene	ND	H	2.4	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
trans-1,3-Dichloropropene	ND	H	12	1.7	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Trichloroethene	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Trichlorofluoromethane	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Vinyl acetate	ND	H	6.0	0.72	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1
Vinyl chloride	ND	H	2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 21:24	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-35

Lab Sample ID: 580-61167-5

Date Collected: 07/20/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		81 - 121	07/22/16 09:50	07/24/16 21:24	1
4-Bromofluorobenzene (Surr)	104		79 - 120	07/22/16 09:50	07/24/16 21:24	1
Dibromofluoromethane (Surr)	103		78 - 118	07/22/16 09:50	07/24/16 21:24	1
Toluene-d8 (Surr)	100		79 - 119	07/22/16 09:50	07/24/16 21:24	1
Trifluorotoluene (Surr)	106		52 - 152	07/22/16 09:50	07/24/16 21:24	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.9		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	31.1		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-05

Lab Sample ID: 580-61167-6

Date Collected: 07/20/16 12:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,1,2,2-Tetrachloroethane	ND		4.5	1.0	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,1,2-Trichloroethane	ND		2.3	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,1,2-Trichlorotrifluoroethane	ND		3.4	0.59	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,1-Dichloroethane	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,1-Dichloroethene	ND		5.6	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,2,4-Trichlorobenzene	ND		2.3	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,2,4-Trimethylbenzene	ND		2.3	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,2-Dibromoethane	ND		1.1	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,2-Dichlorobenzene	ND		2.3	0.35	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,2-Dichloroethane	ND		1.1	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,3,5-Trimethylbenzene	ND		5.6	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,3-Dichlorobenzene	ND		2.3	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
1,4-Dichlorobenzene	ND		1.1	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
2-Butanone	ND		45	10	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
2-Hexanone	ND		23	4.4	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
4-Methyl-2-pentanone	ND		11	1.7	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Acetone	ND		17	2.7	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Benzene	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Bromodichloromethane	ND		1.1	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Bromoform	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Bromomethane	ND		1.1	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Carbon tetrachloride	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Chlorobenzene	ND		2.3	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Chloroethane	ND		2.3	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Chloroform	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Chloromethane	ND		1.1	0.16	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
cis-1,2-Dichloroethene	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
cis-1,3-Dichloropropene	ND		1.1	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Dibromochloromethane	ND		2.3	0.30	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Dichlorodifluoromethane	ND		2.3	0.55	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Ethylbenzene	ND		2.3	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Hexachloro-1,3-butadiene	ND		3.4	0.68	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Methyl tert-butyl ether	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Methylene Chloride	ND		17	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
m-Xylene & p-Xylene	ND		2.3	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Naphthalene	ND		11	2.0	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
o-Xylene	ND		2.3	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Styrene	ND		2.3	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Tetrachloroethene	ND		2.3	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Tetrahydrofuran	ND		110	23	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Toluene	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
trans-1,2-Dichloroethene	ND		2.3	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
trans-1,3-Dichloropropene	ND		11	1.6	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Trichloroethene	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Trichlorofluoromethane	ND		2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Vinyl acetate	ND		5.6	0.68	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1
Vinyl chloride	0.36	J	2.3	0.34	ug/Kg	☼	07/22/16 09:50	07/24/16 21:52	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-05

Lab Sample ID: 580-61167-6

Date Collected: 07/20/16 12:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/22/16 09:50	07/24/16 21:52	1
4-Bromofluorobenzene (Surr)	106		79 - 120	07/22/16 09:50	07/24/16 21:52	1
Dibromofluoromethane (Surr)	105		78 - 118	07/22/16 09:50	07/24/16 21:52	1
Toluene-d8 (Surr)	98		79 - 119	07/22/16 09:50	07/24/16 21:52	1
Trifluorotoluene (Surr)	106		52 - 152	07/22/16 09:50	07/24/16 21:52	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.4		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	14.6		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-10

Lab Sample ID: 580-61167-7

Date Collected: 07/20/16 13:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,1,2,2-Tetrachloroethane	ND		3.6	0.81	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,1,2-Trichloroethane	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,1,2-Trichlorotrifluoroethane	ND		2.7	0.47	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,1-Dichloroethane	ND		0.90	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,1-Dichloroethene	ND		4.5	0.45	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,2,4-Trichlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,2,4-Trimethylbenzene	ND		1.8	0.14	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,2-Dibromoethane	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,2-Dichlorobenzene	ND		1.8	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,2-Dichloroethane	ND		0.90	0.14	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,3,5-Trimethylbenzene	ND		4.5	0.15	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,3-Dichlorobenzene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
1,4-Dichlorobenzene	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
2-Butanone	ND		36	8.0	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
2-Hexanone	ND		18	3.5	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
4-Methyl-2-pentanone	ND		9.0	1.4	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Acetone	ND		14	2.2	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Benzene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Bromodichloromethane	ND		0.90	0.16	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Bromoform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Bromomethane	ND		0.90	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Carbon tetrachloride	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Chlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Chloroethane	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Chloroform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Chloromethane	ND		0.90	0.13	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
cis-1,2-Dichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
cis-1,3-Dichloropropene	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Dibromochloromethane	ND		1.8	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Dichlorodifluoromethane	ND		1.8	0.44	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Ethylbenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Hexachloro-1,3-butadiene	ND		2.7	0.54	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Methyl tert-butyl ether	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Methylene Chloride	ND		14	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
m-Xylene & p-Xylene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Naphthalene	ND		9.0	1.6	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
o-Xylene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Styrene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Tetrachloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Tetrahydrofuran	ND		90	19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Toluene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
trans-1,2-Dichloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
trans-1,3-Dichloropropene	ND		9.0	1.3	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Trichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Trichlorofluoromethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Vinyl acetate	ND		4.5	0.54	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1
Vinyl chloride	0.34	J	1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 22:19	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-10

Lab Sample ID: 580-61167-7

Date Collected: 07/20/16 13:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		81 - 121	07/22/16 09:50	07/24/16 22:19	1
4-Bromofluorobenzene (Surr)	106		79 - 120	07/22/16 09:50	07/24/16 22:19	1
Dibromofluoromethane (Surr)	106		78 - 118	07/22/16 09:50	07/24/16 22:19	1
Toluene-d8 (Surr)	98		79 - 119	07/22/16 09:50	07/24/16 22:19	1
Trifluorotoluene (Surr)	106		52 - 152	07/22/16 09:50	07/24/16 22:19	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.3		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	16.7		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-15

Lab Sample ID: 580-61167-8

Date Collected: 07/20/16 13:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,1,2,2-Tetrachloroethane	ND		3.7	0.84	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,1,2-Trichloroethane	ND		1.9	0.23	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,1,2-Trichlorotrifluoroethane	ND		2.8	0.48	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,1-Dichloroethane	ND		0.93	0.18	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,1-Dichloroethene	ND		4.7	0.47	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,2,4-Trichlorobenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,2-Dibromoethane	ND		0.93	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,2-Dichlorobenzene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,2-Dichloroethane	ND		0.93	0.14	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,3,5-Trimethylbenzene	ND		4.7	0.16	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,3-Dichlorobenzene	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
1,4-Dichlorobenzene	ND		0.93	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
2-Butanone	ND		37	8.3	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
2-Hexanone	ND		19	3.6	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
4-Methyl-2-pentanone	ND		9.3	1.4	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Acetone	ND		14	2.2	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Benzene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Bromodichloromethane	ND		0.93	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Bromoform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Bromomethane	ND		0.93	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Carbon tetrachloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Chlorobenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Chloroform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Chloromethane	ND		0.93	0.13	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
cis-1,2-Dichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
cis-1,3-Dichloropropene	ND		0.93	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Dibromochloromethane	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Dichlorodifluoromethane	ND		1.9	0.46	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Ethylbenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Hexachloro-1,3-butadiene	ND		2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Methyl tert-butyl ether	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Methylene Chloride	ND		14	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Naphthalene	ND		9.3	1.7	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
o-Xylene	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Tetrachloroethene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Tetrahydrofuran	ND		93	19	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Toluene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
trans-1,2-Dichloroethene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
trans-1,3-Dichloropropene	ND		9.3	1.3	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Trichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Trichlorofluoromethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Vinyl acetate	ND		4.7	0.56	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1
Vinyl chloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 22:47	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-15

Lab Sample ID: 580-61167-8

Date Collected: 07/20/16 13:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		81 - 121	07/22/16 09:50	07/24/16 22:47	1
4-Bromofluorobenzene (Surr)	106		79 - 120	07/22/16 09:50	07/24/16 22:47	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/24/16 22:47	1
Toluene-d8 (Surr)	97		79 - 119	07/22/16 09:50	07/24/16 22:47	1
Trifluorotoluene (Surr)	107		52 - 152	07/22/16 09:50	07/24/16 22:47	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.0		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	16.0		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-20

Lab Sample ID: 580-61167-9

Date Collected: 07/20/16 13:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,1,2,2-Tetrachloroethane	ND		3.4	0.77	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,1,2-Trichlorotrifluoroethane	ND		2.6	0.45	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,1-Dichloroethane	ND		0.86	0.16	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,1-Dichloroethene	ND		4.3	0.43	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,2,4-Trichlorobenzene	ND		1.7	0.34	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,2,4-Trimethylbenzene	ND		1.7	0.14	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,2-Dibromoethane	ND		0.86	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,2-Dichlorobenzene	ND		1.7	0.27	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,2-Dichloroethane	ND		0.86	0.13	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,3,5-Trimethylbenzene	ND		4.3	0.15	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
1,4-Dichlorobenzene	ND		0.86	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
2-Butanone	ND		34	7.6	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
2-Hexanone	ND		17	3.3	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
4-Methyl-2-pentanone	ND		8.6	1.3	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Acetone	ND		13	2.1	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Benzene	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Bromodichloromethane	ND		0.86	0.15	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Bromoform	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Bromomethane	ND		0.86	0.18	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Carbon tetrachloride	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Chlorobenzene	ND		1.7	0.34	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Chloroethane	ND		1.7	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Chloroform	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Chloromethane	ND		0.86	0.12	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
cis-1,2-Dichloroethene	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
cis-1,3-Dichloropropene	ND		0.86	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Dibromochloromethane	ND		1.7	0.23	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Dichlorodifluoromethane	ND		1.7	0.42	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Ethylbenzene	ND		1.7	0.34	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Hexachloro-1,3-butadiene	ND		2.6	0.51	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Methyl tert-butyl ether	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Methylene Chloride	ND		13	0.21	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Naphthalene	ND		8.6	1.5	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
o-Xylene	ND		1.7	0.22	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Styrene	ND		1.7	0.17	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Tetrachloroethene	ND		1.7	0.34	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Tetrahydrofuran	ND		86	18	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Toluene	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
trans-1,2-Dichloroethene	ND		1.7	0.34	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
trans-1,3-Dichloropropene	ND		8.6	1.2	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Trichloroethene	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Trichlorofluoromethane	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Vinyl acetate	ND		4.3	0.51	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1
Vinyl chloride	ND		1.7	0.26	ug/Kg	*	07/22/16 09:50	07/24/16 23:14	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-20

Lab Sample ID: 580-61167-9

Date Collected: 07/20/16 13:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		81 - 121	07/22/16 09:50	07/24/16 23:14	1
4-Bromofluorobenzene (Surr)	104		79 - 120	07/22/16 09:50	07/24/16 23:14	1
Dibromofluoromethane (Surr)	106		78 - 118	07/22/16 09:50	07/24/16 23:14	1
Toluene-d8 (Surr)	97		79 - 119	07/22/16 09:50	07/24/16 23:14	1
Trifluorotoluene (Surr)	104		52 - 152	07/22/16 09:50	07/24/16 23:14	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.6		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	15.4		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-25

Lab Sample ID: 580-61167-10

Date Collected: 07/20/16 13:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,1,2,2-Tetrachloroethane	ND		4.1	0.93	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,1,2-Trichlorotrifluoroethane	ND		3.1	0.53	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,1-Dichloroethane	ND		1.0	0.20	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,1-Dichloroethene	ND		5.1	0.51	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,2,4-Trichlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,2,4-Trimethylbenzene	ND		2.1	0.16	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,2-Dibromoethane	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,2-Dichlorobenzene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,3,5-Trimethylbenzene	ND		5.1	0.17	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,3-Dichlorobenzene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
2-Butanone	ND		41	9.2	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
2-Hexanone	ND		21	4.0	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Acetone	4.7	J	15	2.5	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Benzene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Bromodichloromethane	ND		1.0	0.19	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Bromoform	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Bromomethane	ND		1.0	0.22	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Carbon tetrachloride	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Chlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Chloroform	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Chloromethane	ND		1.0	0.14	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
cis-1,2-Dichloroethene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
cis-1,3-Dichloropropene	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Dibromochloromethane	ND		2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Dichlorodifluoromethane	ND		2.1	0.50	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Ethylbenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Hexachloro-1,3-butadiene	ND		3.1	0.62	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Methyl tert-butyl ether	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Methylene Chloride	ND		15	0.25	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Naphthalene	ND		10	1.9	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Tetrachloroethene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Tetrahydrofuran	ND		100	21	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Toluene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
trans-1,2-Dichloroethene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Trichloroethene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Trichlorofluoromethane	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Vinyl acetate	ND		5.1	0.62	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1
Vinyl chloride	0.36	J	2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/24/16 23:42	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-25

Lab Sample ID: 580-61167-10

Date Collected: 07/20/16 13:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/22/16 09:50	07/24/16 23:42	1
4-Bromofluorobenzene (Surr)	107		79 - 120	07/22/16 09:50	07/24/16 23:42	1
Dibromofluoromethane (Surr)	110		78 - 118	07/22/16 09:50	07/24/16 23:42	1
Toluene-d8 (Surr)	97		79 - 119	07/22/16 09:50	07/24/16 23:42	1
Trifluorotoluene (Surr)	104		52 - 152	07/22/16 09:50	07/24/16 23:42	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.9		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	18.1		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-30

Lab Sample ID: 580-61167-11

Date Collected: 07/20/16 13:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,1,1,2-Tetrachloroethane	ND		4.1	0.92	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,1,2-Trichlorotrifluoroethane	ND		3.1	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,1-Dichloroethene	ND		5.1	0.51	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,2,4-Trichlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,2,4-Trimethylbenzene	ND		2.1	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,2-Dibromoethane	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,2-Dichlorobenzene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,3,5-Trimethylbenzene	ND		5.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,3-Dichlorobenzene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
2-Butanone	ND		41	9.1	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
2-Hexanone	ND		21	4.0	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Acetone	ND		15	2.5	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Benzene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Bromoform	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Bromomethane	ND		1.0	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Carbon tetrachloride	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Chlorobenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Chloroform	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Chloromethane	ND		1.0	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
cis-1,2-Dichloroethene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
cis-1,3-Dichloropropene	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Dibromochloromethane	ND		2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Dichlorodifluoromethane	ND		2.1	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Ethylbenzene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Hexachloro-1,3-butadiene	ND		3.1	0.62	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Methyl tert-butyl ether	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Methylene Chloride	ND		15	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Naphthalene	ND		10	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Tetrachloroethene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Tetrahydrofuran	ND		100	21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Toluene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
trans-1,2-Dichloroethene	ND		2.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Trichloroethene	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Trichlorofluoromethane	ND		2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Vinyl acetate	ND		5.1	0.62	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1
Vinyl chloride	0.32	J	2.1	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 00:09	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-30

Lab Sample ID: 580-61167-11

Date Collected: 07/20/16 13:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		81 - 121	07/22/16 09:50	07/25/16 00:09	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 00:09	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 00:09	1
Toluene-d8 (Surr)	98		79 - 119	07/22/16 09:50	07/25/16 00:09	1
Trifluorotoluene (Surr)	104		52 - 152	07/22/16 09:50	07/25/16 00:09	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.2		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	19.8		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-35

Lab Sample ID: 580-61167-12

Date Collected: 07/20/16 13:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 71.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,1,1,2-Tetrachloroethane	ND		4.9	1.1	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,1,1,2-Trichloroethane	ND		2.4	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,1,1,2-Trichlorotrifluoroethane	ND		3.6	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,1-Dichloroethane	ND		1.2	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,1-Dichloroethene	ND		6.1	0.61	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,2,4-Trichlorobenzene	ND		2.4	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,2,4-Trimethylbenzene	ND		2.4	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,2-Dibromoethane	ND		1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,2-Dichlorobenzene	ND		2.4	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,2-Dichloroethane	ND		1.2	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,3,5-Trimethylbenzene	ND		6.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,3-Dichlorobenzene	ND		2.4	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
1,4-Dichlorobenzene	ND		1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
2-Butanone	ND		49	11	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
2-Hexanone	ND		24	4.7	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
4-Methyl-2-pentanone	ND		12	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Acetone	ND		18	2.9	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Benzene	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Bromodichloromethane	ND		1.2	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Bromoform	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Bromomethane	ND		1.2	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Carbon tetrachloride	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Chlorobenzene	ND		2.4	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Chloroethane	ND		2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Chloroform	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Chloromethane	ND		1.2	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
cis-1,2-Dichloroethene	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
cis-1,3-Dichloropropene	ND		1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Dibromochloromethane	ND		2.4	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Dichlorodifluoromethane	ND		2.4	0.60	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Ethylbenzene	ND		2.4	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Hexachloro-1,3-butadiene	ND		3.6	0.73	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Methyl tert-butyl ether	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Methylene Chloride	ND		18	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
m-Xylene & p-Xylene	ND		2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Naphthalene	ND		12	2.2	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
o-Xylene	ND		2.4	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Styrene	ND		2.4	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Tetrachloroethene	ND		2.4	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Tetrahydrofuran	ND		120	25	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Toluene	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
trans-1,2-Dichloroethene	ND		2.4	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
trans-1,3-Dichloropropene	ND		12	1.7	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Trichloroethene	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Trichlorofluoromethane	ND		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Vinyl acetate	ND		6.1	0.73	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1
Vinyl chloride	2.8		2.4	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 00:37	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-35

Lab Sample ID: 580-61167-12

Date Collected: 07/20/16 13:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 71.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		81 - 121	07/22/16 09:50	07/25/16 00:37	1
4-Bromofluorobenzene (Surr)	110		79 - 120	07/22/16 09:50	07/25/16 00:37	1
Dibromofluoromethane (Surr)	110		78 - 118	07/22/16 09:50	07/25/16 00:37	1
Toluene-d8 (Surr)	91		79 - 119	07/22/16 09:50	07/25/16 00:37	1
Trifluorotoluene (Surr)	110		52 - 152	07/22/16 09:50	07/25/16 00:37	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71.8		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	28.2		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-40

Lab Sample ID: 580-61167-13

Date Collected: 07/20/16 14:05

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 73.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,1,2,2-Tetrachloroethane	ND		4.2	0.95	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,1-Dichloroethane	ND		1.1	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,1-Dichloroethene	ND		5.3	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,2,4-Trichlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,2,4-Trimethylbenzene	ND		2.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,2-Dibromoethane	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,2-Dichlorobenzene	ND		2.1	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,2-Dichloroethane	ND		1.1	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,3,5-Trimethylbenzene	ND		5.3	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,3-Dichlorobenzene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
1,4-Dichlorobenzene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
2-Butanone	ND		42	9.4	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
2-Hexanone	ND		21	4.1	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
4-Methyl-2-pentanone	ND		11	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Acetone	ND		16	2.5	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Benzene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Bromodichloromethane	ND		1.1	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Bromoform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Bromomethane	ND		1.1	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Carbon tetrachloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Chlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Chloroform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
cis-1,2-Dichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
cis-1,3-Dichloropropene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Dibromochloromethane	ND		2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Dichlorodifluoromethane	ND		2.1	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Ethylbenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Hexachloro-1,3-butadiene	ND		3.2	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Methyl tert-butyl ether	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Methylene Chloride	ND		16	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Naphthalene	ND		11	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Tetrachloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Tetrahydrofuran	ND		110	22	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Toluene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
trans-1,2-Dichloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
trans-1,3-Dichloropropene	ND		11	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Trichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Trichlorofluoromethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Vinyl acetate	ND		5.3	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1
Vinyl chloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:05	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-40

Lab Sample ID: 580-61167-13

Date Collected: 07/20/16 14:05

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 73.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		81 - 121	07/22/16 09:50	07/25/16 01:05	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 01:05	1
Dibromofluoromethane (Surr)	105		78 - 118	07/22/16 09:50	07/25/16 01:05	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 01:05	1
Trifluorotoluene (Surr)	104		52 - 152	07/22/16 09:50	07/25/16 01:05	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	73.9		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	26.1		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-45

Lab Sample ID: 580-61167-14

Date Collected: 07/20/16 14:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,1,1,2-Tetrachloroethane	ND		5.0	1.1	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,1,1,2-Trichloroethane	ND		2.5	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,1,1,2-Trichlorotrifluoroethane	ND		3.7	0.65	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,1-Dichloroethane	ND		1.2	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,1-Dichloroethene	ND		6.2	0.62	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,2,4-Trichlorobenzene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,2,4-Trimethylbenzene	ND		2.5	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,2-Dibromoethane	ND		1.2	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,2-Dichlorobenzene	ND		2.5	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,2-Dichloroethane	ND		1.2	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,3,5-Trimethylbenzene	ND		6.2	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,3-Dichlorobenzene	ND		2.5	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
1,4-Dichlorobenzene	ND		1.2	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
2-Butanone	ND		50	11	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
2-Hexanone	ND		25	4.9	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
4-Methyl-2-pentanone	ND		12	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Acetone	3.6	J	19	3.0	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Benzene	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Bromodichloromethane	ND		1.2	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Bromoform	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Bromomethane	ND		1.2	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Carbon tetrachloride	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Chlorobenzene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Chloroethane	ND		2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Chloroform	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Chloromethane	ND		1.2	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
cis-1,2-Dichloroethene	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
cis-1,3-Dichloropropene	ND		1.2	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Dibromochloromethane	ND		2.5	0.34	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Dichlorodifluoromethane	ND		2.5	0.61	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Ethylbenzene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Hexachloro-1,3-butadiene	ND		3.7	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Methyl tert-butyl ether	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Methylene Chloride	ND		19	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
m-Xylene & p-Xylene	ND		2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Naphthalene	ND		12	2.2	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
o-Xylene	ND		2.5	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Styrene	ND		2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Tetrachloroethene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Tetrahydrofuran	ND		120	26	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Toluene	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
trans-1,2-Dichloroethene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
trans-1,3-Dichloropropene	ND		12	1.7	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Trichloroethene	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Trichlorofluoromethane	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Vinyl acetate	ND		6.2	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1
Vinyl chloride	ND		2.5	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 01:32	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-45

Lab Sample ID: 580-61167-14

Date Collected: 07/20/16 14:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		81 - 121	07/22/16 09:50	07/25/16 01:32	1
4-Bromofluorobenzene (Surr)	105		79 - 120	07/22/16 09:50	07/25/16 01:32	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 01:32	1
Toluene-d8 (Surr)	97		79 - 119	07/22/16 09:50	07/25/16 01:32	1
Trifluorotoluene (Surr)	103		52 - 152	07/22/16 09:50	07/25/16 01:32	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.8		0.1	0.1	%			07/22/16 16:42	1
Percent Moisture	31.2		0.1	0.1	%			07/22/16 16:42	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-50

Lab Sample ID: 580-61167-15

Date Collected: 07/20/16 14:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 74.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,1,1,2-Tetrachloroethane	ND		4.2	0.95	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,1-Dichloroethane	ND		1.1	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,1-Dichloroethene	ND		5.3	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,2,4-Trichlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,2,4-Trimethylbenzene	ND		2.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,2-Dibromoethane	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,2-Dichlorobenzene	ND		2.1	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,2-Dichloroethane	ND		1.1	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,3,5-Trimethylbenzene	ND		5.3	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,3-Dichlorobenzene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
1,4-Dichlorobenzene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
2-Butanone	ND		42	9.4	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
2-Hexanone	ND		21	4.1	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
4-Methyl-2-pentanone	ND		11	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Acetone	ND		16	2.5	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Benzene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Bromodichloromethane	ND		1.1	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Bromoform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Bromomethane	ND		1.1	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Carbon tetrachloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Chlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Chloroform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
cis-1,2-Dichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
cis-1,3-Dichloropropene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Dibromochloromethane	ND		2.1	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Dichlorodifluoromethane	ND		2.1	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Ethylbenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Hexachloro-1,3-butadiene	ND		3.2	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Methyl tert-butyl ether	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Methylene Chloride	ND		16	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Naphthalene	ND		11	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
o-Xylene	ND		2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Tetrachloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Tetrahydrofuran	ND		110	22	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Toluene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
trans-1,2-Dichloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
trans-1,3-Dichloropropene	ND		11	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Trichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Trichlorofluoromethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Vinyl acetate	ND		5.3	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1
Vinyl chloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 02:00	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-50

Lab Sample ID: 580-61167-15

Date Collected: 07/20/16 14:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 74.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		81 - 121	07/22/16 09:50	07/25/16 02:00	1
4-Bromofluorobenzene (Surr)	104		79 - 120	07/22/16 09:50	07/25/16 02:00	1
Dibromofluoromethane (Surr)	108		78 - 118	07/22/16 09:50	07/25/16 02:00	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 02:00	1
Trifluorotoluene (Surr)	103		52 - 152	07/22/16 09:50	07/25/16 02:00	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	74.2		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	25.8		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-55

Lab Sample ID: 580-61167-16

Date Collected: 07/20/16 14:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 69.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,1,1,2-Tetrachloroethane	ND	F1	5.0	1.1	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,1,1,2-Trichloroethane	ND	F1	2.5	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,1,1,2-Trichlorotrifluoroethane	ND		3.8	0.65	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,1-Dichloroethane	ND	F1	1.3	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,1-Dichloroethene	ND		6.3	0.63	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,2,4-Trichlorobenzene	ND	F1	2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,2,4-Trimethylbenzene	ND	F1	2.5	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,2-Dibromoethane	ND	F1	1.3	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,2-Dichlorobenzene	ND	F1	2.5	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,2-Dichloroethane	ND	F1	1.3	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,3,5-Trimethylbenzene	ND	F1	6.3	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,3-Dichlorobenzene	ND	F1	2.5	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
1,4-Dichlorobenzene	ND	F1	1.3	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
2-Butanone	ND		50	11	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
2-Hexanone	ND		25	4.9	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
4-Methyl-2-pentanone	ND		13	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Acetone	ND		19	3.0	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Benzene	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Bromodichloromethane	ND	F1	1.3	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Bromoform	ND		2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Bromomethane	ND		1.3	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Carbon tetrachloride	ND		2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Chlorobenzene	ND	F1	2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Chloroethane	ND		2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Chloroform	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Chloromethane	ND		1.3	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
cis-1,2-Dichloroethene	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
cis-1,3-Dichloropropene	ND	F1	1.3	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Dibromochloromethane	ND	F1	2.5	0.34	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Dichlorodifluoromethane	ND		2.5	0.61	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Ethylbenzene	ND	F1	2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Hexachloro-1,3-butadiene	ND	F1	3.8	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Methyl tert-butyl ether	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Methylene Chloride	0.39	J	19	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
m-Xylene & p-Xylene	ND	F1	2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Naphthalene	ND		13	2.3	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
o-Xylene	ND	F1	2.5	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Styrene	ND	F1	2.5	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Tetrachloroethene	ND	F1	2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Tetrahydrofuran	ND		130	26	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Toluene	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
trans-1,2-Dichloroethene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
trans-1,3-Dichloropropene	ND	F1	13	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Trichloroethene	ND	F1	2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Trichlorofluoromethane	ND		2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Vinyl acetate	ND		6.3	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1
Vinyl chloride	ND		2.5	0.38	ug/Kg	☼	07/22/16 09:50	07/25/16 15:38	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-55

Lab Sample ID: 580-61167-16

Date Collected: 07/20/16 14:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 69.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/22/16 09:50	07/25/16 15:38	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 15:38	1
Dibromofluoromethane (Surr)	109		78 - 118	07/22/16 09:50	07/25/16 15:38	1
Toluene-d8 (Surr)	100		79 - 119	07/22/16 09:50	07/25/16 15:38	1
Trifluorotoluene (Surr)	100		52 - 152	07/22/16 09:50	07/25/16 15:38	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69.8		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	30.2		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-60

Lab Sample ID: 580-61167-17

Date Collected: 07/20/16 15:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,1,2,2-Tetrachloroethane	ND		3.5	0.79	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,1,2-Trichloroethane	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,1,2-Trichlorotrifluoroethane	ND		2.6	0.45	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,1-Dichloroethane	ND		0.87	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,1-Dichloroethene	ND		4.4	0.44	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,2,4-Trichlorobenzene	ND		1.7	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,2,4-Trimethylbenzene	ND		1.7	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,2-Dibromoethane	ND		0.87	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,2-Dichlorobenzene	ND		1.7	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,2-Dichloroethane	ND		0.87	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,3,5-Trimethylbenzene	ND		4.4	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,3-Dichlorobenzene	ND		1.7	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
1,4-Dichlorobenzene	ND		0.87	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
2-Butanone	ND		35	7.8	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
2-Hexanone	ND		17	3.4	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
4-Methyl-2-pentanone	ND		8.7	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Acetone	ND		13	2.1	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Benzene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Bromodichloromethane	ND		0.87	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Bromoform	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Bromomethane	ND		0.87	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Carbon tetrachloride	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Chlorobenzene	ND		1.7	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Chloroform	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Chloromethane	ND		0.87	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
cis-1,2-Dichloroethene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
cis-1,3-Dichloropropene	ND		0.87	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Dibromochloromethane	ND		1.7	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Dichlorodifluoromethane	ND		1.7	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Ethylbenzene	ND		1.7	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Hexachloro-1,3-butadiene	ND		2.6	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Methyl tert-butyl ether	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Methylene Chloride	ND		13	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Naphthalene	ND		8.7	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
o-Xylene	ND		1.7	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Tetrachloroethene	ND		1.7	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Tetrahydrofuran	ND		87	18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Toluene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
trans-1,2-Dichloroethene	ND		1.7	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
trans-1,3-Dichloropropene	ND		8.7	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Trichloroethene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Trichlorofluoromethane	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Vinyl acetate	ND		4.4	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1
Vinyl chloride	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:02	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-60

Lab Sample ID: 580-61167-17

Date Collected: 07/20/16 15:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		81 - 121	07/22/16 09:50	07/25/16 17:02	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/22/16 09:50	07/25/16 17:02	1
Dibromofluoromethane (Surr)	105		78 - 118	07/22/16 09:50	07/25/16 17:02	1
Toluene-d8 (Surr)	100		79 - 119	07/22/16 09:50	07/25/16 17:02	1
Trifluorotoluene (Surr)	98		52 - 152	07/22/16 09:50	07/25/16 17:02	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	11.6		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF01-SS

Lab Sample ID: 580-61167-18

Date Collected: 07/20/16 08:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 76.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,1,1,2,2-Tetrachloroethane	ND	H	4.3	0.96	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,1,1,2-Trichloroethane	ND	H	2.1	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,1,1,2-Trichlorotrifluoroethane	ND	H	3.2	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,1-Dichloroethane	ND	H	1.1	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,1-Dichloroethene	ND	H	5.3	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,2,4-Trichlorobenzene	ND	H	2.1	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,2,4-Trimethylbenzene	ND	H	2.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,2-Dibromoethane	ND	H	1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,2-Dichlorobenzene	ND	H	2.1	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,2-Dichloroethane	ND	H	1.1	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,3,5-Trimethylbenzene	ND	H	5.3	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,3-Dichlorobenzene	ND	H	2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
1,4-Dichlorobenzene	ND	H	1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
2-Butanone	ND	H	43	9.5	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
2-Hexanone	ND	H	21	4.2	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
4-Methyl-2-pentanone	ND	H	11	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Acetone	ND	H	16	2.6	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Benzene	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Bromodichloromethane	ND	H	1.1	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Bromoform	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Bromomethane	ND	H	1.1	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Carbon tetrachloride	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Chlorobenzene	ND	H	2.1	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Chloroethane	ND	H	2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Chloroform	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Chloromethane	ND	H	1.1	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
cis-1,2-Dichloroethene	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
cis-1,3-Dichloropropene	ND	H	1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Dibromochloromethane	ND	H	2.1	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Dichlorodifluoromethane	ND	H	2.1	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Ethylbenzene	ND	H	2.1	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Hexachloro-1,3-butadiene	ND	H	3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Methyl tert-butyl ether	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Methylene Chloride	0.34	J H	16	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
m-Xylene & p-Xylene	ND	H	2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Naphthalene	ND	H	11	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
o-Xylene	ND	H	2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Styrene	ND	H	2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Tetrachloroethene	ND	H	2.1	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Tetrahydrofuran	ND	H	110	22	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Toluene	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
trans-1,2-Dichloroethene	ND	H	2.1	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
trans-1,3-Dichloropropene	ND	H	11	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Trichloroethene	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Trichlorofluoromethane	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Vinyl acetate	ND	H	5.3	0.64	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1
Vinyl chloride	ND	H	2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 17:30	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF01-SS

Lab Sample ID: 580-61167-18

Date Collected: 07/20/16 08:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 76.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/22/16 09:50	07/25/16 17:30	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 17:30	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 17:30	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 17:30	1
Trifluorotoluene (Surr)	96		52 - 152	07/22/16 09:50	07/25/16 17:30	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	76.4		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	23.6		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-05

Lab Sample ID: 580-61167-19

Date Collected: 07/21/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,1,2,2-Tetrachloroethane	ND		3.6	0.82	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,1,2-Trichloroethane	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,1,2-Trichlorotrifluoroethane	ND		2.7	0.47	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,1-Dichloroethane	ND		0.91	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,1-Dichloroethene	ND		4.6	0.46	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,2,4-Trichlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,2,4-Trimethylbenzene	ND		1.8	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,2-Dibromoethane	ND		0.91	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,2-Dichlorobenzene	ND		1.8	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,2-Dichloroethane	ND		0.91	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,3,5-Trimethylbenzene	ND		4.6	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,3-Dichlorobenzene	ND		1.8	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
1,4-Dichlorobenzene	ND		0.91	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
2-Butanone	ND		36	8.1	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
2-Hexanone	ND		18	3.6	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
4-Methyl-2-pentanone	ND		9.1	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Acetone	ND		14	2.2	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Benzene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Bromodichloromethane	ND		0.91	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Bromoform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Bromomethane	ND		0.91	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Carbon tetrachloride	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Chlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Chloroethane	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Chloroform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Chloromethane	ND		0.91	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
cis-1,2-Dichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
cis-1,3-Dichloropropene	ND		0.91	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Dibromochloromethane	ND		1.8	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Dichlorodifluoromethane	ND		1.8	0.45	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Ethylbenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Hexachloro-1,3-butadiene	ND		2.7	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Methyl tert-butyl ether	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Methylene Chloride	ND		14	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
m-Xylene & p-Xylene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Naphthalene	ND		9.1	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
o-Xylene	ND		1.8	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Styrene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Tetrachloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Tetrahydrofuran	ND		91	19	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Toluene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
trans-1,2-Dichloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
trans-1,3-Dichloropropene	ND		9.1	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Trichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Trichlorofluoromethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Vinyl acetate	ND		4.6	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1
Vinyl chloride	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 17:57	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-05

Lab Sample ID: 580-61167-19

Date Collected: 07/21/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/22/16 09:50	07/25/16 17:57	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/22/16 09:50	07/25/16 17:57	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 17:57	1
Toluene-d8 (Surr)	103		79 - 119	07/22/16 09:50	07/25/16 17:57	1
Trifluorotoluene (Surr)	98		52 - 152	07/22/16 09:50	07/25/16 17:57	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.8		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	16.2		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-10

Lab Sample ID: 580-61167-20

Date Collected: 07/21/16 09:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,1,1,2-Tetrachloroethane	ND		4.1	0.91	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,1-Dichloroethene	ND		5.1	0.51	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,2,4-Trichlorobenzene	ND		2.0	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,3,5-Trimethylbenzene	ND		5.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
2-Butanone	ND		41	9.0	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
2-Hexanone	ND		20	4.0	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Acetone	8.7	J	15	2.4	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Benzene	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Bromoform	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Bromomethane	ND		1.0	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Chlorobenzene	ND		2.0	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Chloroethane	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Chloroform	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Chloromethane	ND		1.0	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Dichlorodifluoromethane	ND		2.0	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Ethylbenzene	ND		2.0	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Hexachloro-1,3-butadiene	ND		3.0	0.61	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Methylene Chloride	0.73	J	15	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Naphthalene	ND		10	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
o-Xylene	ND		2.0	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Styrene	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Tetrachloroethene	ND		2.0	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Tetrahydrofuran	ND		100	21	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Toluene	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
trans-1,2-Dichloroethene	ND		2.0	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Trichloroethene	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Vinyl acetate	ND		5.1	0.61	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1
Vinyl chloride	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:25	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-10

Lab Sample ID: 580-61167-20

Date Collected: 07/21/16 09:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/22/16 09:50	07/25/16 18:25	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 18:25	1
Dibromofluoromethane (Surr)	106		78 - 118	07/22/16 09:50	07/25/16 18:25	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 18:25	1
Trifluorotoluene (Surr)	97		52 - 152	07/22/16 09:50	07/25/16 18:25	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.4		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	19.6		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-15

Lab Sample ID: 580-61167-21

Date Collected: 07/21/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.88	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.51	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,1-Dichloroethane	ND		0.98	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,2,4-Trichlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,2-Dibromoethane	ND		0.98	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,2-Dichlorobenzene	ND		2.0	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,2-Dichloroethane	ND		0.98	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
1,4-Dichlorobenzene	ND		0.98	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
2-Butanone	ND		39	8.7	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
2-Hexanone	ND		20	3.8	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
4-Methyl-2-pentanone	ND		9.8	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Acetone	ND		15	2.4	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Benzene	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Bromodichloromethane	ND		0.98	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Bromoform	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Bromomethane	ND		0.98	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Carbon tetrachloride	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Chlorobenzene	ND		2.0	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Chloroethane	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Chloroform	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Chloromethane	ND		0.98	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
cis-1,2-Dichloroethene	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
cis-1,3-Dichloropropene	ND		0.98	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Dibromochloromethane	ND		2.0	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Dichlorodifluoromethane	ND		2.0	0.48	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Ethylbenzene	ND		2.0	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Hexachloro-1,3-butadiene	ND		2.9	0.59	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Methyl tert-butyl ether	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Methylene Chloride	ND		15	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Naphthalene	ND		9.8	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
o-Xylene	ND		2.0	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Styrene	ND		2.0	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Tetrachloroethene	ND		2.0	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Tetrahydrofuran	ND		98	20	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Toluene	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
trans-1,2-Dichloroethene	ND		2.0	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
trans-1,3-Dichloropropene	ND		9.8	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Trichloroethene	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Trichlorofluoromethane	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Vinyl acetate	ND		4.9	0.59	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1
Vinyl chloride	ND		2.0	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 18:53	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-15

Lab Sample ID: 580-61167-21

Date Collected: 07/21/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		81 - 121	07/22/16 09:50	07/25/16 18:53	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 18:53	1
Dibromofluoromethane (Surr)	108		78 - 118	07/22/16 09:50	07/25/16 18:53	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 18:53	1
Trifluorotoluene (Surr)	96		52 - 152	07/22/16 09:50	07/25/16 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.2		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	18.8		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-20

Lab Sample ID: 580-61167-22

Date Collected: 07/21/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.88	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.51	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,1-Dichloroethane	ND		0.97	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,2,4-Trichlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,2,4-Trimethylbenzene	ND		1.9	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,2-Dibromoethane	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,2-Dichlorobenzene	ND		1.9	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,2-Dichloroethane	ND		0.97	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
1,4-Dichlorobenzene	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
2-Butanone	ND		39	8.7	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
2-Hexanone	ND		19	3.8	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
4-Methyl-2-pentanone	ND		9.7	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Acetone	ND		15	2.3	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Benzene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Bromodichloromethane	ND		0.97	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Bromoform	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Bromomethane	ND		0.97	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Carbon tetrachloride	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Chlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Chloroform	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Chloromethane	ND		0.97	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
cis-1,2-Dichloroethene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
cis-1,3-Dichloropropene	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Dichlorodifluoromethane	ND		1.9	0.48	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Ethylbenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Hexachloro-1,3-butadiene	ND		2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Methyl tert-butyl ether	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Methylene Chloride	0.56	J	15	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Naphthalene	ND		9.7	1.8	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Tetrachloroethene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Tetrahydrofuran	ND		97	20	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Toluene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
trans-1,2-Dichloroethene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
trans-1,3-Dichloropropene	ND		9.7	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Trichloroethene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Trichlorofluoromethane	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Vinyl acetate	ND		4.9	0.58	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1
Vinyl chloride	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 19:20	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-20

Lab Sample ID: 580-61167-22

Date Collected: 07/21/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		81 - 121	07/22/16 09:50	07/25/16 19:20	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/22/16 09:50	07/25/16 19:20	1
Dibromofluoromethane (Surr)	103		78 - 118	07/22/16 09:50	07/25/16 19:20	1
Toluene-d8 (Surr)	103		79 - 119	07/22/16 09:50	07/25/16 19:20	1
Trifluorotoluene (Surr)	99		52 - 152	07/22/16 09:50	07/25/16 19:20	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.6		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	16.4		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-25

Lab Sample ID: 580-61167-23

Date Collected: 07/21/16 09:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,1,2,2-Tetrachloroethane	ND		3.3	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,1,2-Trichlorotrifluoroethane	ND		2.5	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,1-Dichloroethane	ND		0.83	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,1-Dichloroethene	ND		4.2	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,2,4-Trichlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,2,4-Trimethylbenzene	ND		1.7	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,2-Dibromoethane	ND		0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,2-Dichlorobenzene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,2-Dichloroethane	ND		0.83	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,3,5-Trimethylbenzene	ND		4.2	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
1,4-Dichlorobenzene	ND		0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
2-Butanone	ND		33	7.4	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
2-Hexanone	ND		17	3.2	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
4-Methyl-2-pentanone	ND		8.3	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Acetone	ND		12	2.0	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Benzene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Bromodichloromethane	ND		0.83	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Bromoform	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Bromomethane	ND		0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Carbon tetrachloride	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Chlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Chloroform	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Chloromethane	ND		0.83	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
cis-1,2-Dichloroethene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
cis-1,3-Dichloropropene	ND		0.83	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Dibromochloromethane	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Dichlorodifluoromethane	ND		1.7	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Ethylbenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Hexachloro-1,3-butadiene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Methyl tert-butyl ether	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Methylene Chloride	0.64	J	12	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Naphthalene	ND		8.3	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Tetrachloroethene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Tetrahydrofuran	ND		83	17	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Toluene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
trans-1,2-Dichloroethene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
trans-1,3-Dichloropropene	ND		8.3	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Trichloroethene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Trichlorofluoromethane	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Vinyl acetate	ND		4.2	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1
Vinyl chloride	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 19:48	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-25

Lab Sample ID: 580-61167-23

Date Collected: 07/21/16 09:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		81 - 121	07/22/16 09:50	07/25/16 19:48	1
4-Bromofluorobenzene (Surr)	104		79 - 120	07/22/16 09:50	07/25/16 19:48	1
Dibromofluoromethane (Surr)	106		78 - 118	07/22/16 09:50	07/25/16 19:48	1
Toluene-d8 (Surr)	101		79 - 119	07/22/16 09:50	07/25/16 19:48	1
Trifluorotoluene (Surr)	97		52 - 152	07/22/16 09:50	07/25/16 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.1		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	11.9		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-30

Lab Sample ID: 580-61167-24

Date Collected: 07/21/16 10:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,1,2,2-Tetrachloroethane	ND		3.5	0.79	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,1,2-Trichloroethane	ND		1.8	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,1,2-Trichlorotrifluoroethane	ND		2.6	0.46	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,1-Dichloroethane	ND		0.88	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,1-Dichloroethene	ND		4.4	0.44	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,2,4-Trichlorobenzene	ND		1.8	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,2,4-Trimethylbenzene	ND		1.8	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,2-Dibromoethane	ND		0.88	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,2-Dichlorobenzene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,2-Dichloroethane	ND		0.88	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,3,5-Trimethylbenzene	ND		4.4	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,3-Dichlorobenzene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
1,4-Dichlorobenzene	ND		0.88	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
2-Butanone	ND		35	7.8	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
2-Hexanone	ND		18	3.4	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
4-Methyl-2-pentanone	ND		8.8	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Acetone	ND		13	2.1	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Benzene	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Bromodichloromethane	ND		0.88	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Bromoform	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Bromomethane	ND		0.88	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Carbon tetrachloride	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Chlorobenzene	ND		1.8	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Chloroethane	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Chloroform	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Chloromethane	ND		0.88	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
cis-1,2-Dichloroethene	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
cis-1,3-Dichloropropene	ND		0.88	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Dibromochloromethane	ND		1.8	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Dichlorodifluoromethane	ND		1.8	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Ethylbenzene	ND		1.8	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Hexachloro-1,3-butadiene	ND		2.6	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Methyl tert-butyl ether	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Methylene Chloride	0.82	J	13	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
m-Xylene & p-Xylene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Naphthalene	ND		8.8	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
o-Xylene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Styrene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Tetrachloroethene	ND		1.8	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Tetrahydrofuran	ND		88	18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Toluene	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
trans-1,2-Dichloroethene	ND		1.8	0.35	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
trans-1,3-Dichloropropene	ND		8.8	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Trichloroethene	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Trichlorofluoromethane	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Vinyl acetate	ND		4.4	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1
Vinyl chloride	ND		1.8	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:15	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-30

Lab Sample ID: 580-61167-24

Date Collected: 07/21/16 10:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/22/16 09:50	07/25/16 20:15	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/22/16 09:50	07/25/16 20:15	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 20:15	1
Toluene-d8 (Surr)	100		79 - 119	07/22/16 09:50	07/25/16 20:15	1
Trifluorotoluene (Surr)	98		52 - 152	07/22/16 09:50	07/25/16 20:15	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	14.7		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-35

Lab Sample ID: 580-61167-25

Date Collected: 07/21/16 10:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,1,2,2-Tetrachloroethane	ND		3.3	0.75	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,1,2-Trichloroethane	ND		1.7	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,1,2-Trichlorotrifluoroethane	ND		2.5	0.43	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,1-Dichloroethane	ND		0.84	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,1-Dichloroethene	ND		4.2	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,2,4-Trichlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,2,4-Trimethylbenzene	ND		1.7	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,2-Dibromoethane	ND		0.84	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,2-Dichlorobenzene	ND		1.7	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,2-Dichloroethane	ND		0.84	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,3,5-Trimethylbenzene	ND		4.2	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,3-Dichlorobenzene	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
1,4-Dichlorobenzene	ND		0.84	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
2-Butanone	ND		33	7.4	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
2-Hexanone	ND		17	3.3	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
4-Methyl-2-pentanone	ND		8.4	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Acetone	ND		13	2.0	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Benzene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Bromodichloromethane	ND		0.84	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Bromoform	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Bromomethane	ND		0.84	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Carbon tetrachloride	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Chlorobenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Chloroethane	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Chloroform	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Chloromethane	ND		0.84	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
cis-1,2-Dichloroethene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
cis-1,3-Dichloropropene	ND		0.84	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Dibromochloromethane	ND		1.7	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Dichlorodifluoromethane	ND		1.7	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Ethylbenzene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Hexachloro-1,3-butadiene	ND		2.5	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Methyl tert-butyl ether	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Methylene Chloride	ND		13	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
m-Xylene & p-Xylene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Naphthalene	ND		8.4	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
o-Xylene	ND		1.7	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Styrene	ND		1.7	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Tetrachloroethene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Tetrahydrofuran	ND		84	17	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Toluene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
trans-1,2-Dichloroethene	ND		1.7	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
trans-1,3-Dichloropropene	ND		8.4	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Trichloroethene	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Trichlorofluoromethane	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Vinyl acetate	ND		4.2	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1
Vinyl chloride	ND		1.7	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 20:43	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-35

Lab Sample ID: 580-61167-25

Date Collected: 07/21/16 10:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		81 - 121	07/22/16 09:50	07/25/16 20:43	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/22/16 09:50	07/25/16 20:43	1
Dibromofluoromethane (Surr)	104		78 - 118	07/22/16 09:50	07/25/16 20:43	1
Toluene-d8 (Surr)	102		79 - 119	07/22/16 09:50	07/25/16 20:43	1
Trifluorotoluene (Surr)	98		52 - 152	07/22/16 09:50	07/25/16 20:43	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.6		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	12.4		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-40

Lab Sample ID: 580-61167-26

Date Collected: 07/21/16 10:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,1,2,2-Tetrachloroethane	ND		3.6	0.81	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,1,2-Trichloroethane	ND		1.8	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,1,2-Trichlorotrifluoroethane	ND		2.7	0.47	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,1-Dichloroethane	ND		0.90	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,1-Dichloroethene	ND		4.5	0.45	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,2,4-Trichlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,2,4-Trimethylbenzene	ND		1.8	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,2-Dibromoethane	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,2-Dichlorobenzene	ND		1.8	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,2-Dichloroethane	ND		0.90	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,3,5-Trimethylbenzene	ND		4.5	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,3-Dichlorobenzene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
1,4-Dichlorobenzene	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
2-Butanone	ND		36	8.0	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
2-Hexanone	ND		18	3.5	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
4-Methyl-2-pentanone	ND		9.0	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Acetone	4.6	J	13	2.2	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Benzene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Bromodichloromethane	ND		0.90	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Bromoform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Bromomethane	ND		0.90	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Carbon tetrachloride	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Chlorobenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Chloroethane	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Chloroform	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Chloromethane	ND		0.90	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
cis-1,2-Dichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
cis-1,3-Dichloropropene	ND		0.90	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Dibromochloromethane	ND		1.8	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Dichlorodifluoromethane	ND		1.8	0.44	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Ethylbenzene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Hexachloro-1,3-butadiene	ND		2.7	0.54	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Methyl tert-butyl ether	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Methylene Chloride	0.62	J	13	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
m-Xylene & p-Xylene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Naphthalene	ND		9.0	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
o-Xylene	ND		1.8	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Styrene	ND		1.8	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Tetrachloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Tetrahydrofuran	ND		90	18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Toluene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
trans-1,2-Dichloroethene	ND		1.8	0.36	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
trans-1,3-Dichloropropene	ND		9.0	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Trichloroethene	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Trichlorofluoromethane	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Vinyl acetate	ND		4.5	0.54	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1
Vinyl chloride	ND		1.8	0.27	ug/Kg	☼	07/22/16 09:50	07/25/16 21:11	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-40

Lab Sample ID: 580-61167-26

Date Collected: 07/21/16 10:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		81 - 121	07/22/16 09:50	07/25/16 21:11	1
4-Bromofluorobenzene (Surr)	101		79 - 120	07/22/16 09:50	07/25/16 21:11	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 21:11	1
Toluene-d8 (Surr)	101		79 - 119	07/22/16 09:50	07/25/16 21:11	1
Trifluorotoluene (Surr)	97		52 - 152	07/22/16 09:50	07/25/16 21:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.5		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	11.5		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-45

Lab Sample ID: 580-61167-27

Date Collected: 07/21/16 10:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,1,2,2-Tetrachloroethane	ND		3.7	0.84	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,1,2-Trichloroethane	ND		1.9	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,1,2-Trichlorotrifluoroethane	ND		2.8	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,1-Dichloroethane	ND		0.94	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,1-Dichloroethene	ND		4.7	0.47	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,2,4-Trichlorobenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,2-Dibromoethane	ND		0.94	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,2-Dichlorobenzene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,2-Dichloroethane	ND		0.94	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,3,5-Trimethylbenzene	ND		4.7	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,3-Dichlorobenzene	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
1,4-Dichlorobenzene	ND		0.94	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
2-Butanone	ND		37	8.3	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
2-Hexanone	ND		19	3.6	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
4-Methyl-2-pentanone	ND		9.4	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Acetone	ND		14	2.2	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Benzene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Bromodichloromethane	ND		0.94	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Bromoform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Bromomethane	ND		0.94	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Carbon tetrachloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Chlorobenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Chloroform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Chloromethane	ND		0.94	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
cis-1,2-Dichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
cis-1,3-Dichloropropene	ND		0.94	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Dibromochloromethane	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Dichlorodifluoromethane	ND		1.9	0.46	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Ethylbenzene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Hexachloro-1,3-butadiene	ND		2.8	0.56	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Methyl tert-butyl ether	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Methylene Chloride	ND		14	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Naphthalene	ND		9.4	1.7	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
o-Xylene	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Tetrachloroethene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Tetrahydrofuran	ND		94	19	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Toluene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
trans-1,2-Dichloroethene	ND		1.9	0.37	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
trans-1,3-Dichloropropene	ND		9.4	1.3	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Trichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Trichlorofluoromethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Vinyl acetate	ND		4.7	0.56	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1
Vinyl chloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 21:38	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-45

Lab Sample ID: 580-61167-27

Date Collected: 07/21/16 10:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		81 - 121	07/22/16 09:50	07/25/16 21:38	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/22/16 09:50	07/25/16 21:38	1
Dibromofluoromethane (Surr)	105		78 - 118	07/22/16 09:50	07/25/16 21:38	1
Toluene-d8 (Surr)	99		79 - 119	07/22/16 09:50	07/25/16 21:38	1
Trifluorotoluene (Surr)	100		52 - 152	07/22/16 09:50	07/25/16 21:38	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.1		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	15.9		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-50

Lab Sample ID: 580-61167-28

Date Collected: 07/21/16 11:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 86.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,1,2,2-Tetrachloroethane	ND		3.3	0.74	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,1,2-Trichloroethane	ND		1.6	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,1,2-Trichlorotrifluoroethane	ND		2.5	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,1-Dichloroethane	ND		0.82	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,1-Dichloroethene	ND		4.1	0.41	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,2,4-Trichlorobenzene	ND		1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,2,4-Trimethylbenzene	ND		1.6	0.13	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,2-Dibromoethane	ND		0.82	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,2-Dichlorobenzene	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,2-Dichloroethane	ND		0.82	0.12	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,3,5-Trimethylbenzene	ND		4.1	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,3-Dichlorobenzene	ND		1.6	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
1,4-Dichlorobenzene	ND		0.82	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
2-Butanone	ND		33	7.3	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
2-Hexanone	ND		16	3.2	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
4-Methyl-2-pentanone	ND		8.2	1.2	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Acetone	ND		12	2.0	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Benzene	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Bromodichloromethane	ND		0.82	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Bromoform	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Bromomethane	ND		0.82	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Carbon tetrachloride	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Chlorobenzene	ND		1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Chloroethane	ND		1.6	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Chloroform	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Chloromethane	ND		0.82	0.11	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
cis-1,2-Dichloroethene	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
cis-1,3-Dichloropropene	ND		0.82	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Dibromochloromethane	ND		1.6	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Dichlorodifluoromethane	ND		1.6	0.40	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Ethylbenzene	ND		1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Hexachloro-1,3-butadiene	ND		2.5	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Methyl tert-butyl ether	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Methylene Chloride	0.64	J	12	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
m-Xylene & p-Xylene	ND		1.6	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Naphthalene	ND		8.2	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
o-Xylene	ND		1.6	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Styrene	ND		1.6	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Tetrachloroethene	ND		1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Tetrahydrofuran	ND		82	17	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Toluene	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
trans-1,2-Dichloroethene	ND		1.6	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
trans-1,3-Dichloropropene	ND		8.2	1.1	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Trichloroethene	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Trichlorofluoromethane	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Vinyl acetate	ND		4.1	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1
Vinyl chloride	ND		1.6	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:06	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-50

Lab Sample ID: 580-61167-28

Date Collected: 07/21/16 11:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 86.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		81 - 121	07/22/16 09:50	07/25/16 22:06	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/22/16 09:50	07/25/16 22:06	1
Dibromofluoromethane (Surr)	107		78 - 118	07/22/16 09:50	07/25/16 22:06	1
Toluene-d8 (Surr)	101		79 - 119	07/22/16 09:50	07/25/16 22:06	1
Trifluorotoluene (Surr)	98		52 - 152	07/22/16 09:50	07/25/16 22:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.5		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	13.5		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-55

Lab Sample ID: 580-61167-29

Date Collected: 07/21/16 11:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 78.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,1,2,2-Tetrachloroethane	ND		4.2	0.95	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,1,2-Trichloroethane	ND		2.1	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,1,2-Trichlorotrifluoroethane	ND		3.2	0.55	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,1-Dichloroethane	ND		1.1	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,1-Dichloroethene	ND		5.3	0.53	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,2,4-Trichlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,2,4-Trimethylbenzene	ND		2.1	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,2-Dibromoethane	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,2-Dichlorobenzene	ND		2.1	0.33	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,2-Dichloroethane	ND		1.1	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,3,5-Trimethylbenzene	ND		5.3	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,3-Dichlorobenzene	ND		2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
1,4-Dichlorobenzene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
2-Butanone	ND		42	9.4	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
2-Hexanone	ND		21	4.1	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
4-Methyl-2-pentanone	ND		11	1.6	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Acetone	ND		16	2.5	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Benzene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Bromodichloromethane	ND		1.1	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Bromoform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Bromomethane	ND		1.1	0.22	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Carbon tetrachloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Chlorobenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Chloroethane	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Chloroform	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Chloromethane	ND		1.1	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
cis-1,2-Dichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
cis-1,3-Dichloropropene	ND		1.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Dibromochloromethane	ND		2.1	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Dichlorodifluoromethane	ND		2.1	0.52	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Ethylbenzene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Hexachloro-1,3-butadiene	ND		3.2	0.64	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Methyl tert-butyl ether	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Methylene Chloride	2.2	J	16	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
m-Xylene & p-Xylene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Naphthalene	ND		11	1.9	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
o-Xylene	ND		2.1	0.28	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Styrene	ND		2.1	0.21	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Tetrachloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Tetrahydrofuran	ND		110	22	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Toluene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
trans-1,2-Dichloroethene	ND		2.1	0.42	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
trans-1,3-Dichloropropene	ND		11	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Trichloroethene	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Trichlorofluoromethane	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Vinyl acetate	ND		5.3	0.64	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1
Vinyl chloride	ND		2.1	0.32	ug/Kg	☼	07/22/16 09:50	07/25/16 22:33	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-55

Lab Sample ID: 580-61167-29

Date Collected: 07/21/16 11:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 78.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		81 - 121	07/22/16 09:50	07/25/16 22:33	1
4-Bromofluorobenzene (Surr)	99		79 - 120	07/22/16 09:50	07/25/16 22:33	1
Dibromofluoromethane (Surr)	104		78 - 118	07/22/16 09:50	07/25/16 22:33	1
Toluene-d8 (Surr)	103		79 - 119	07/22/16 09:50	07/25/16 22:33	1
Trifluorotoluene (Surr)	97		52 - 152	07/22/16 09:50	07/25/16 22:33	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	78.4		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	21.6		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF01-072116

Lab Sample ID: 580-61167-30

Date Collected: 07/21/16 17:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,1,2,2-Tetrachloroethane	ND		3.8	0.85	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,1,2-Trichlorotrifluoroethane	ND		2.8	0.49	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,1-Dichloroethane	ND		0.95	0.18	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,1-Dichloroethene	ND		4.7	0.47	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,2,4-Trichlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,2,4-Trimethylbenzene	ND		1.9	0.15	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,2-Dibromoethane	ND		0.95	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,2-Dichlorobenzene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,2-Dichloroethane	ND		0.95	0.14	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,3,5-Trimethylbenzene	ND		4.7	0.16	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
1,4-Dichlorobenzene	ND		0.95	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
2-Butanone	ND		38	8.4	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
2-Hexanone	ND		19	3.7	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
4-Methyl-2-pentanone	ND		9.5	1.4	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Acetone	10	J	14	2.3	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Benzene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Bromodichloromethane	ND		0.95	0.17	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Bromoform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Bromomethane	ND		0.95	0.20	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Carbon tetrachloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Chlorobenzene	ND		1.9	0.38	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Chloroform	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Chloromethane	ND		0.95	0.13	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
cis-1,2-Dichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
cis-1,3-Dichloropropene	ND		0.95	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Dichlorodifluoromethane	ND		1.9	0.46	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Ethylbenzene	ND		1.9	0.38	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Hexachloro-1,3-butadiene	ND		2.8	0.57	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Methyl tert-butyl ether	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Methylene Chloride	4.8	J	14	0.23	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Naphthalene	ND		9.5	1.7	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Tetrachloroethene	ND		1.9	0.38	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Tetrahydrofuran	ND		95	19	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Toluene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
trans-1,2-Dichloroethene	ND		1.9	0.38	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
trans-1,3-Dichloropropene	ND		9.5	1.3	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Trichloroethene	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Trichlorofluoromethane	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Vinyl acetate	ND		4.7	0.57	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1
Vinyl chloride	ND		1.9	0.28	ug/Kg	☼	07/22/16 09:50	07/27/16 15:06	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF01-072116

Lab Sample ID: 580-61167-30

Date Collected: 07/21/16 17:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		81 - 121	07/22/16 09:50	07/27/16 15:06	1
4-Bromofluorobenzene (Surr)	100		79 - 120	07/22/16 09:50	07/27/16 15:06	1
Dibromofluoromethane (Surr)	100		78 - 118	07/22/16 09:50	07/27/16 15:06	1
Toluene-d8 (Surr)	102		79 - 119	07/22/16 09:50	07/27/16 15:06	1
Trifluorotoluene (Surr)	103		52 - 152	07/22/16 09:50	07/27/16 15:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.6		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	18.4		0.1	0.1	%			07/22/16 18:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF02-072116

Lab Sample ID: 580-61167-31

Date Collected: 07/21/16 17:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,1,2,2-Tetrachloroethane	ND		3.9	0.87	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,1,2-Trichloroethane	ND		1.9	0.24	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,1,2-Trichlorotrifluoroethane	ND		2.9	0.50	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,1-Dichloroethane	ND		0.97	0.18	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,1-Dichloroethene	ND		4.9	0.49	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,2,4-Trichlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,2,4-Trimethylbenzene	ND		1.9	0.16	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,2-Dibromoethane	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,2-Dichlorobenzene	ND		1.9	0.30	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,2-Dichloroethane	ND		0.97	0.15	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,3,5-Trimethylbenzene	ND		4.9	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,3-Dichlorobenzene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
1,4-Dichlorobenzene	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
2-Butanone	ND		39	8.6	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
2-Hexanone	ND		19	3.8	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
4-Methyl-2-pentanone	ND		9.7	1.5	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Acetone	ND		15	2.3	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Benzene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Bromodichloromethane	ND		0.97	0.17	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Bromoform	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Bromomethane	ND		0.97	0.20	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Carbon tetrachloride	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Chlorobenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Chloroethane	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Chloroform	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Chloromethane	ND		0.97	0.14	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
cis-1,2-Dichloroethene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
cis-1,3-Dichloropropene	ND		0.97	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Dibromochloromethane	ND		1.9	0.26	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Dichlorodifluoromethane	ND		1.9	0.48	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Ethylbenzene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Hexachloro-1,3-butadiene	ND		2.9	0.58	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Methyl tert-butyl ether	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Methylene Chloride	1.8	J	15	0.23	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
m-Xylene & p-Xylene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Naphthalene	ND		9.7	1.7	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
o-Xylene	ND		1.9	0.25	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Styrene	ND		1.9	0.19	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Tetrachloroethene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Tetrahydrofuran	ND		97	20	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Toluene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
trans-1,2-Dichloroethene	ND		1.9	0.39	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
trans-1,3-Dichloropropene	ND		9.7	1.4	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Trichloroethene	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Trichlorofluoromethane	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Vinyl acetate	ND		4.9	0.58	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1
Vinyl chloride	ND		1.9	0.29	ug/Kg	☼	07/22/16 09:50	07/25/16 02:28	1

TestAmerica Seattle

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF02-072116

Lab Sample ID: 580-61167-31

Date Collected: 07/21/16 17:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		81 - 121	07/22/16 09:50	07/25/16 02:28	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/22/16 09:50	07/25/16 02:28	1
Dibromofluoromethane (Surr)	105		78 - 118	07/22/16 09:50	07/25/16 02:28	1
Toluene-d8 (Surr)	98		79 - 119	07/22/16 09:50	07/25/16 02:28	1
Trifluorotoluene (Surr)	104		52 - 152	07/22/16 09:50	07/25/16 02:28	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.9		0.1	0.1	%			07/22/16 18:13	1
Percent Moisture	12.1		0.1	0.1	%			07/22/16 18:13	1

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-223023/1-A

Matrix: Solid

Analysis Batch: 223024

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223023

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
2-Butanone	ND		40	8.9	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
2-Hexanone	ND		20	3.9	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Acetone	ND		15	2.4	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Benzene	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Bromoform	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Chloroform	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Naphthalene	ND		10	1.8	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Styrene	ND		2.0	0.20	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Toluene	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/24/16 16:05	07/24/16 18:10	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/24/16 16:05	07/24/16 18:10	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		81 - 121	07/24/16 16:05	07/24/16 18:10	1
4-Bromofluorobenzene (Surr)	106		79 - 120	07/24/16 16:05	07/24/16 18:10	1
Dibromofluoromethane (Surr)	98		78 - 118	07/24/16 16:05	07/24/16 18:10	1
Toluene-d8 (Surr)	101		79 - 119	07/24/16 16:05	07/24/16 18:10	1
Trifluorotoluene (Surr)	111		52 - 152	07/24/16 16:05	07/24/16 18:10	1

Lab Sample ID: LCS 580-223023/2-A

Matrix: Solid

Analysis Batch: 223024

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223023

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	20.0	18.8		ug/Kg		94	65 - 125
1,1,1,2-Trichloroethane	20.1	19.1		ug/Kg		95	69 - 117
1,1,1,2-Trichlorotrifluoroethane	20.2	18.7		ug/Kg		93	57 - 127
1,1-Dichloroethane	20.0	19.9		ug/Kg		99	70 - 128
1,1-Dichloroethene	20.2	19.4		ug/Kg		96	58 - 123
1,2,4-Trichlorobenzene	20.0	18.0		ug/Kg		90	61 - 130
1,2,4-Trimethylbenzene	20.0	18.3		ug/Kg		91	61 - 124
1,2-Dibromoethane	20.0	19.4		ug/Kg		97	69 - 119
1,2-Dichlorobenzene	20.0	18.8		ug/Kg		94	69 - 119
1,2-Dichloroethane	20.0	18.8		ug/Kg		94	71 - 121
1,3,5-Trimethylbenzene	20.0	18.1		ug/Kg		90	64 - 125
1,3-Dichlorobenzene	20.0	18.1		ug/Kg		90	70 - 119
1,4-Dichlorobenzene	20.1	17.7		ug/Kg		88	71 - 117
2-Butanone	100	91.1		ug/Kg		91	44 - 141
2-Hexanone	100	96.4		ug/Kg		96	56 - 134
4-Methyl-2-pentanone	100	94.8		ug/Kg		95	58 - 135
Acetone	100	92.6		ug/Kg		93	53 - 134
Benzene	20.1	19.4		ug/Kg		97	70 - 118
Bromodichloromethane	20.1	20.1		ug/Kg		100	75 - 119
Bromoform	20.1	19.6		ug/Kg		98	50 - 124
Bromomethane	20.0	19.2		ug/Kg		96	41 - 148
Carbon tetrachloride	20.0	19.8		ug/Kg		99	67 - 126
Chlorobenzene	20.1	19.5		ug/Kg		97	68 - 120
Chloroethane	20.0	20.1		ug/Kg		100	48 - 142
Chloroform	20.0	19.7		ug/Kg		98	72 - 125
Chloromethane	20.0	17.5		ug/Kg		88	46 - 136
cis-1,2-Dichloroethene	20.0	19.4		ug/Kg		97	70 - 119
cis-1,3-Dichloropropene	20.1	18.8		ug/Kg		94	69 - 129
Dibromochloromethane	20.0	19.7		ug/Kg		98	64 - 129
Dichlorodifluoromethane	20.0	16.8		ug/Kg		84	38 - 140
Ethylbenzene	20.1	19.3		ug/Kg		96	66 - 119
Hexachloro-1,3-butadiene	20.0	18.1		ug/Kg		91	58 - 128
Methyl tert-butyl ether	20.0	18.2		ug/Kg		91	58 - 134
Methylene Chloride	20.1	17.5		ug/Kg		87	57 - 129
m-Xylene & p-Xylene	20.0	18.7		ug/Kg		93	69 - 126
Naphthalene	20.0	16.2		ug/Kg		81	45 - 141
o-Xylene	20.0	19.4		ug/Kg		97	66 - 127
Styrene	20.0	19.7		ug/Kg		98	68 - 120
Tetrachloroethene	20.1	17.4		ug/Kg		87	63 - 123
Tetrahydrofuran	40.0	36.2	J	ug/Kg		90	49 - 144
Toluene	20.0	18.7		ug/Kg		93	67 - 119
trans-1,2-Dichloroethene	20.0	19.2		ug/Kg		96	63 - 122

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-223023/2-A

Matrix: Solid

Analysis Batch: 223024

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223023

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,3-Dichloropropene	20.0	19.5		ug/Kg		97	65 - 129
Trichloroethene	20.0	19.6		ug/Kg		98	68 - 118
Trichlorofluoromethane	20.0	19.2		ug/Kg		96	59 - 137
Vinyl acetate	50.0	49.3		ug/Kg		99	52 - 150
Vinyl chloride	20.0	18.6		ug/Kg		93	43 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		81 - 121
4-Bromofluorobenzene (Surr)	102		79 - 120
Dibromofluoromethane (Surr)	98		78 - 118
Toluene-d8 (Surr)	98		79 - 119
Trifluorotoluene (Surr)	113		52 - 152

Lab Sample ID: LCSD 580-223023/3-A

Matrix: Solid

Analysis Batch: 223024

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 223023

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	20.1	19.3		ug/Kg		96	63 - 129	2	20
1,1,1,2-Tetrachloroethane	20.0	19.3		ug/Kg		96	65 - 125	3	22
1,1,1,2-Trichloroethane	20.1	19.9		ug/Kg		99	69 - 117	4	18
1,1,1,2-Trichlorotrifluoroethane	20.2	18.6		ug/Kg		92	57 - 127	1	30
1,1-Dichloroethane	20.0	19.2		ug/Kg		96	70 - 128	3	21
1,1-Dichloroethene	20.2	19.5		ug/Kg		97	58 - 123	0	23
1,2,4-Trichlorobenzene	20.0	18.5		ug/Kg		93	61 - 130	3	22
1,2,4-Trimethylbenzene	20.0	18.2		ug/Kg		91	61 - 124	0	18
1,2-Dibromoethane	20.0	19.7		ug/Kg		98	69 - 119	2	15
1,2-Dichlorobenzene	20.0	19.1		ug/Kg		95	69 - 119	2	17
1,2-Dichloroethane	20.0	19.1		ug/Kg		96	71 - 121	2	18
1,3,5-Trimethylbenzene	20.0	18.1		ug/Kg		90	64 - 125	0	18
1,3-Dichlorobenzene	20.0	18.6		ug/Kg		93	70 - 119	3	17
1,4-Dichlorobenzene	20.1	18.3		ug/Kg		91	71 - 117	3	18
2-Butanone	100	96.3		ug/Kg		96	44 - 141	6	40
2-Hexanone	100	101		ug/Kg		101	56 - 134	5	22
4-Methyl-2-pentanone	100	101		ug/Kg		101	58 - 135	7	22
Acetone	100	98.1		ug/Kg		98	53 - 134	6	40
Benzene	20.1	19.1		ug/Kg		95	70 - 118	1	19
Bromodichloromethane	20.1	20.9		ug/Kg		104	75 - 119	4	19
Bromoform	20.1	19.4		ug/Kg		97	50 - 124	1	16
Bromomethane	20.0	17.7		ug/Kg		89	41 - 148	8	29
Carbon tetrachloride	20.0	19.0		ug/Kg		95	67 - 126	4	19
Chlorobenzene	20.1	19.2		ug/Kg		96	68 - 120	2	21
Chloroethane	20.0	19.6		ug/Kg		98	48 - 142	3	25
Chloroform	20.0	19.5		ug/Kg		97	72 - 125	1	17
Chloromethane	20.0	15.5		ug/Kg		78	46 - 136	12	26
cis-1,2-Dichloroethene	20.0	18.8		ug/Kg		94	70 - 119	3	19
cis-1,3-Dichloropropene	20.1	19.3		ug/Kg		96	69 - 129	3	19
Dibromochloromethane	20.0	19.8		ug/Kg		99	64 - 129	1	14

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-223023/3-A

Matrix: Solid

Analysis Batch: 223024

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 223023

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
							RPD	Limit		
Dichlorodifluoromethane	20.0	15.0		ug/Kg		75	38 - 140	11	26	
Ethylbenzene	20.1	18.8		ug/Kg		93	66 - 119	3	23	
Hexachloro-1,3-butadiene	20.0	17.9		ug/Kg		89	58 - 128	1	29	
Methyl tert-butyl ether	20.0	18.8		ug/Kg		94	58 - 134	3	20	
Methylene Chloride	20.1	16.7		ug/Kg		83	57 - 129	5	21	
m-Xylene & p-Xylene	20.0	18.3		ug/Kg		91	69 - 126	2	23	
Naphthalene	20.0	18.7		ug/Kg		94	45 - 141	14	34	
o-Xylene	20.0	19.0		ug/Kg		95	66 - 127	2	22	
Styrene	20.0	19.3		ug/Kg		97	68 - 120	2	21	
Tetrachloroethene	20.1	17.2		ug/Kg		86	63 - 123	1	20	
Tetrahydrofuran	40.0	37.2	J	ug/Kg		93	49 - 144	3	40	
Toluene	20.0	18.6		ug/Kg		93	67 - 119	1	19	
trans-1,2-Dichloroethene	20.0	19.2		ug/Kg		96	63 - 122	0	18	
trans-1,3-Dichloropropene	20.0	19.8		ug/Kg		99	65 - 129	2	20	
Trichloroethene	20.0	19.4		ug/Kg		97	68 - 118	1	17	
Trichlorofluoromethane	20.0	17.5		ug/Kg		88	59 - 137	9	40	
Vinyl acetate	50.0	46.9		ug/Kg		94	52 - 150	5	30	
Vinyl chloride	20.0	16.6		ug/Kg		83	43 - 131	11	40	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		81 - 121
4-Bromofluorobenzene (Surr)	100		79 - 120
Dibromofluoromethane (Surr)	99		78 - 118
Toluene-d8 (Surr)	98		79 - 119
Trifluorotoluene (Surr)	111		52 - 152

Lab Sample ID: MB 580-223063/1-A

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223063

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
2-Butanone	ND		40	8.9	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
2-Hexanone	ND		20	3.9	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/25/16 12:13	07/25/16 14:43	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-223063/1-A

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223063

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		15	2.4	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Benzene	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Bromoform	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Chloroform	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Naphthalene	ND		10	1.8	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Styrene	ND		2.0	0.20	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Toluene	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/25/16 12:13	07/25/16 14:43	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/25/16 12:13	07/25/16 14:43	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	101		81 - 121	07/25/16 12:13	07/25/16 14:43	1
4-Bromofluorobenzene (Surr)	102		79 - 120	07/25/16 12:13	07/25/16 14:43	1
Dibromofluoromethane (Surr)	102		78 - 118	07/25/16 12:13	07/25/16 14:43	1
Toluene-d8 (Surr)	102		79 - 119	07/25/16 12:13	07/25/16 14:43	1
Trifluorotoluene (Surr)	99		52 - 152	07/25/16 12:13	07/25/16 14:43	1

Lab Sample ID: LCS 580-223063/2-A

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1,1-Trichloroethane	20.1	19.3		ug/Kg		96	63 - 129
1,1,2,2-Tetrachloroethane	20.0	21.3		ug/Kg		106	65 - 125
1,1,2-Trichloroethane	20.1	20.3		ug/Kg		101	69 - 117
1,1,2-Trichlorotrifluoroethane	20.2	17.9		ug/Kg		89	57 - 127

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-223063/2-A

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	20.0	19.5		ug/Kg		97	70 - 128
1,1-Dichloroethene	20.2	19.0		ug/Kg		94	58 - 123
1,2,4-Trichlorobenzene	20.0	19.8		ug/Kg		99	61 - 130
1,2,4-Trimethylbenzene	20.0	20.3		ug/Kg		101	61 - 124
1,2-Dibromoethane	20.0	20.6		ug/Kg		103	69 - 119
1,2-Dichlorobenzene	20.0	21.2		ug/Kg		106	69 - 119
1,2-Dichloroethane	20.0	19.0		ug/Kg		95	71 - 121
1,3,5-Trimethylbenzene	20.0	20.1		ug/Kg		100	64 - 125
1,3-Dichlorobenzene	20.0	20.6		ug/Kg		103	70 - 119
1,4-Dichlorobenzene	20.1	20.3		ug/Kg		101	71 - 117
2-Butanone	100	92.3		ug/Kg		92	44 - 141
2-Hexanone	100	101		ug/Kg		101	56 - 134
4-Methyl-2-pentanone	100	101		ug/Kg		101	58 - 135
Acetone	100	91.1		ug/Kg		91	53 - 134
Benzene	20.1	19.5		ug/Kg		97	70 - 118
Bromodichloromethane	20.1	21.1		ug/Kg		105	75 - 119
Bromoform	20.1	20.1		ug/Kg		100	50 - 124
Bromomethane	20.0	19.5		ug/Kg		98	41 - 148
Carbon tetrachloride	20.0	19.2		ug/Kg		96	67 - 126
Chlorobenzene	20.1	19.8		ug/Kg		98	68 - 120
Chloroethane	20.0	18.4		ug/Kg		92	48 - 142
Chloroform	20.0	19.4		ug/Kg		97	72 - 125
Chloromethane	20.0	16.9		ug/Kg		85	46 - 136
cis-1,2-Dichloroethene	20.0	19.7		ug/Kg		98	70 - 119
cis-1,3-Dichloropropene	20.1	20.0		ug/Kg		100	69 - 129
Dibromochloromethane	20.0	20.7		ug/Kg		103	64 - 129
Dichlorodifluoromethane	20.0	15.7		ug/Kg		79	38 - 140
Ethylbenzene	20.1	19.4		ug/Kg		96	66 - 119
Hexachloro-1,3-butadiene	20.0	19.7		ug/Kg		99	58 - 128
Methyl tert-butyl ether	20.0	18.9		ug/Kg		94	58 - 134
Methylene Chloride	20.1	18.2		ug/Kg		91	57 - 129
m-Xylene & p-Xylene	20.0	19.0		ug/Kg		95	69 - 126
Naphthalene	20.0	19.1		ug/Kg		96	45 - 141
o-Xylene	20.0	19.8		ug/Kg		99	66 - 127
Styrene	20.0	20.3		ug/Kg		101	68 - 120
Tetrachloroethene	20.1	19.1		ug/Kg		95	63 - 123
Tetrahydrofuran	40.0	36.3	J	ug/Kg		91	49 - 144
Toluene	20.0	19.3		ug/Kg		97	67 - 119
trans-1,2-Dichloroethene	20.0	19.0		ug/Kg		95	63 - 122
trans-1,3-Dichloropropene	20.0	20.6		ug/Kg		103	65 - 129
Trichloroethene	20.0	19.2		ug/Kg		96	68 - 118
Trichlorofluoromethane	20.0	18.6		ug/Kg		93	59 - 137
Vinyl acetate	50.0	48.5		ug/Kg		97	52 - 150
Vinyl chloride	20.0	18.1		ug/Kg		90	43 - 131

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	104		81 - 121
4-Bromofluorobenzene (Surr)	100		79 - 120

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-223063/2-A

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223063

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	103		78 - 118
Toluene-d8 (Surr)	100		79 - 119
Trifluorotoluene (Surr)	98		52 - 152

Lab Sample ID: 580-61167-16 MS

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: SB23-SS-55

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Sample		Spike Added	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
1,1,1-Trichloroethane	ND		20.8	13.7		ug/Kg	*	66	63 - 129
1,1,2,2-Tetrachloroethane	ND	F1	20.8	12.2	F1	ug/Kg	*	59	65 - 125
1,1,2-Trichloroethane	ND	F1	20.8	11.8	F1	ug/Kg	*	57	69 - 117
1,1,2-Trichlorotrifluoroethane	ND		20.9	14.7		ug/Kg	*	70	57 - 127
1,1-Dichloroethane	ND	F1	20.7	13.3	F1	ug/Kg	*	64	70 - 128
1,1-Dichloroethene	ND		20.9	14.5		ug/Kg	*	69	58 - 123
1,2,4-Trichlorobenzene	ND	F1	20.7	8.34	F1	ug/Kg	*	40	61 - 130
1,2,4-Trimethylbenzene	ND	F1	20.7	9.13	F1	ug/Kg	*	44	61 - 124
1,2-Dibromoethane	ND	F1	20.8	11.3	F1	ug/Kg	*	54	69 - 119
1,2-Dichlorobenzene	ND	F1	20.7	9.61	F1	ug/Kg	*	46	69 - 119
1,2-Dichloroethane	ND	F1	20.7	11.5	F1	ug/Kg	*	55	71 - 121
1,3,5-Trimethylbenzene	ND	F1	20.8	9.48	F1	ug/Kg	*	46	64 - 125
1,3-Dichlorobenzene	ND	F1	20.8	9.10	F1	ug/Kg	*	44	70 - 119
1,4-Dichlorobenzene	ND	F1	20.8	9.00	F1	ug/Kg	*	43	71 - 117
2-Butanone	ND		104	55.5		ug/Kg	*	53	44 - 141
2-Hexanone	ND		104	60.3		ug/Kg	*	58	56 - 134
4-Methyl-2-pentanone	ND		104	61.6		ug/Kg	*	59	58 - 135
Acetone	ND		104	57.9		ug/Kg	*	56	53 - 134
Benzene	ND	F1	20.8	12.6	F1	ug/Kg	*	61	70 - 118
Bromodichloromethane	ND	F1	20.8	11.8	F1	ug/Kg	*	57	75 - 119
Bromoform	ND		20.8	10.7		ug/Kg	*	52	50 - 124
Bromomethane	ND		20.7	14.8		ug/Kg	*	71	41 - 148
Carbon tetrachloride	ND		20.8	14.0		ug/Kg	*	67	67 - 126
Chlorobenzene	ND	F1	20.8	10.6	F1	ug/Kg	*	51	68 - 120
Chloroethane	ND		20.7	15.0		ug/Kg	*	72	48 - 142
Chloroform	ND	F1	20.7	12.5	F1	ug/Kg	*	60	72 - 125
Chloromethane	ND		20.7	13.7		ug/Kg	*	66	46 - 136
cis-1,2-Dichloroethene	ND	F1	20.8	12.4	F1	ug/Kg	*	60	70 - 119
cis-1,3-Dichloropropene	ND	F1	20.8	10.9	F1	ug/Kg	*	53	69 - 129
Dibromochloromethane	ND	F1	20.8	11.1	F1	ug/Kg	*	54	64 - 129
Dichlorodifluoromethane	ND		20.7	14.5		ug/Kg	*	70	38 - 140
Ethylbenzene	ND	F1	20.8	10.5	F1	ug/Kg	*	50	66 - 119
Hexachloro-1,3-butadiene	ND	F1	20.7	7.52	F1	ug/Kg	*	36	58 - 128
Methyl tert-butyl ether	ND	F1	20.8	10.5	F1	ug/Kg	*	51	58 - 134
Methylene Chloride	0.39	J	20.8	13.1	J	ug/Kg	*	61	57 - 129
m-Xylene & p-Xylene	ND	F1	20.8	10.1	F1	ug/Kg	*	49	69 - 126
Naphthalene	ND		20.8	9.64	J	ug/Kg	*	46	45 - 141
o-Xylene	ND	F1	20.8	10.2	F1	ug/Kg	*	49	66 - 127
Styrene	ND	F1	20.8	9.92	F1	ug/Kg	*	48	68 - 120

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-61167-16 MS

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: SB23-SS-55

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits	
	Result	Qualifier	Added	Result	Qualifier						
Tetrachloroethene	ND	F1	20.8	11.7	F1	ug/Kg	*	56		63 - 123	
Tetrahydrofuran	ND		41.5	25.9	J	ug/Kg	*	63		49 - 144	
Toluene	ND	F1	20.8	11.8	F1	ug/Kg	*	57		67 - 119	
trans-1,2-Dichloroethene	ND		20.8	13.2		ug/Kg	*	64		63 - 122	
trans-1,3-Dichloropropene	ND	F1	20.8	11.2	F1	ug/Kg	*	54		65 - 129	
Trichloroethene	ND	F1	20.8	12.4	F1	ug/Kg	*	60		68 - 118	
Trichlorofluoromethane	ND		20.7	16.3		ug/Kg	*	79		59 - 137	
Vinyl acetate	ND		51.8	30.4		ug/Kg	*	59		52 - 150	
Vinyl chloride	ND		20.7	15.4		ug/Kg	*	74		43 - 131	
MS MS											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	113		81 - 121								
4-Bromofluorobenzene (Surr)	99		79 - 120								
Dibromofluoromethane (Surr)	107		78 - 118								
Toluene-d8 (Surr)	99		79 - 119								
Trifluorotoluene (Surr)	99		52 - 152								

Lab Sample ID: 580-61167-16 MSD

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: SB23-SS-55

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						RPD	
1,1,1-Trichloroethane	ND		22.4	16.5		ug/Kg	*	73		63 - 129	18	40
1,1,1,2-Tetrachloroethane	ND	F1	22.4	16.0		ug/Kg	*	71		65 - 125	27	40
1,1,1,2-Trichloroethane	ND	F1	22.4	15.1	F1	ug/Kg	*	67		69 - 117	24	40
1,1,1,2-Trichlorotrifluoroethane	ND		22.6	17.8		ug/Kg	*	79		57 - 127	19	40
1,1-Dichloroethane	ND	F1	22.4	16.4		ug/Kg	*	73		70 - 128	21	40
1,1-Dichloroethene	ND		22.6	17.7		ug/Kg	*	78		58 - 123	20	40
1,2,4-Trichlorobenzene	ND	F1	22.4	11.0	F1	ug/Kg	*	49		61 - 130	27	40
1,2,4-Trimethylbenzene	ND	F1	22.4	11.9	F1	ug/Kg	*	53		61 - 124	26	40
1,2-Dibromoethane	ND	F1	22.4	15.2	F1	ug/Kg	*	68		69 - 119	30	40
1,2-Dichlorobenzene	ND	F1	22.4	12.8	F1	ug/Kg	*	57		69 - 119	28	40
1,2-Dichloroethane	ND	F1	22.4	14.1	F1	ug/Kg	*	63		71 - 121	21	40
1,3,5-Trimethylbenzene	ND	F1	22.4	11.9	F1	ug/Kg	*	53		64 - 125	23	40
1,3-Dichlorobenzene	ND	F1	22.4	12.0	F1	ug/Kg	*	53		70 - 119	27	40
1,4-Dichlorobenzene	ND	F1	22.4	11.9	F1	ug/Kg	*	53		71 - 117	28	40
2-Butanone	ND		112	75.2		ug/Kg	*	67		44 - 141	30	40
2-Hexanone	ND		112	80.4		ug/Kg	*	72		56 - 134	29	40
4-Methyl-2-pentanone	ND		112	81.4		ug/Kg	*	73		58 - 135	28	40
Acetone	ND		112	83.5		ug/Kg	*	75		53 - 134	36	40
Benzene	ND	F1	22.5	15.5	F1	ug/Kg	*	69		70 - 118	20	40
Bromodichloromethane	ND	F1	22.4	15.4	F1	ug/Kg	*	69		75 - 119	26	40
Bromoform	ND		22.4	14.2		ug/Kg	*	63		50 - 124	28	40
Bromomethane	ND		22.4	17.4		ug/Kg	*	78		41 - 148	16	40
Carbon tetrachloride	ND		22.4	16.8		ug/Kg	*	75		67 - 126	18	40
Chlorobenzene	ND	F1	22.5	13.4	F1	ug/Kg	*	60		68 - 120	23	40
Chloroethane	ND		22.4	21.7		ug/Kg	*	97		48 - 142	36	40
Chloroform	ND	F1	22.4	15.3	F1	ug/Kg	*	68		72 - 125	21	40

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-61167-16 MSD

Matrix: Solid

Analysis Batch: 223067

Client Sample ID: SB23-SS-55

Prep Type: Total/NA

Prep Batch: 223063

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloromethane	ND		22.4	15.8		ug/Kg	*	71	46 - 136	14	40
cis-1,2-Dichloroethene	ND	F1	22.4	15.6		ug/Kg	*	70	70 - 119	22	40
cis-1,3-Dichloropropene	ND	F1	22.4	14.4	F1	ug/Kg	*	64	69 - 129	27	40
Dibromochloromethane	ND	F1	22.4	14.6		ug/Kg	*	65	64 - 129	27	40
Dichlorodifluoromethane	ND		22.4	16.4		ug/Kg	*	73	38 - 140	12	40
Ethylbenzene	ND	F1	22.5	13.0	F1	ug/Kg	*	58	66 - 119	21	40
Hexachloro-1,3-butadiene	ND	F1	22.4	8.85	F1	ug/Kg	*	40	58 - 128	16	40
Methyl tert-butyl ether	ND	F1	22.4	14.1		ug/Kg	*	63	58 - 134	29	40
Methylene Chloride	0.39	J	22.5	16.7	J	ug/Kg	*	73	57 - 129	24	40
m-Xylene & p-Xylene	ND	F1	22.4	12.5	F1	ug/Kg	*	56	69 - 126	21	40
Naphthalene	ND		22.4	13.4		ug/Kg	*	60	45 - 141	33	40
o-Xylene	ND	F1	22.4	12.9	F1	ug/Kg	*	58	66 - 127	23	40
Styrene	ND	F1	22.4	13.0	F1	ug/Kg	*	58	68 - 120	27	40
Tetrachloroethene	ND	F1	22.4	14.2		ug/Kg	*	63	63 - 123	19	40
Tetrahydrofuran	ND		44.8	32.9	J	ug/Kg	*	73	49 - 144	24	40
Toluene	ND	F1	22.4	14.3	F1	ug/Kg	*	64	67 - 119	19	40
trans-1,2-Dichloroethene	ND		22.4	15.8		ug/Kg	*	70	63 - 122	18	40
trans-1,3-Dichloropropene	ND	F1	22.4	14.5		ug/Kg	*	65	65 - 129	26	40
Trichloroethene	ND	F1	22.4	15.1	F1	ug/Kg	*	67	68 - 118	19	40
Trichlorofluoromethane	ND		22.4	18.8		ug/Kg	*	84	59 - 137	14	40
Vinyl acetate	ND		55.9	36.7		ug/Kg	*	66	52 - 150	19	40
Vinyl chloride	ND		22.4	17.7		ug/Kg	*	79	43 - 131	14	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	106		81 - 121
4-Bromofluorobenzene (Surr)	102		79 - 120
Dibromofluoromethane (Surr)	105		78 - 118
Toluene-d8 (Surr)	99		79 - 119
Trifluorotoluene (Surr)	99		52 - 152

Lab Sample ID: MB 580-223309/1-A

Matrix: Solid

Analysis Batch: 223310

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223309

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,1,1,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,1,2-Trichlorotrifluoroethane	ND		3.0	0.52	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,1-Dichloroethene	ND		5.0	0.50	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,2,4-Trichlorobenzene	ND		2.0	0.40	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,2,4-Trimethylbenzene	ND		2.0	0.16	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,2-Dichlorobenzene	ND		2.0	0.31	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,2-Dichloroethane	ND		1.0	0.15	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,3,5-Trimethylbenzene	ND		5.0	0.17	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
1,3-Dichlorobenzene	ND		2.0	0.26	ug/Kg		07/27/16 12:33	07/27/16 13:43	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-223309/1-A

Matrix: Solid

Analysis Batch: 223310

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223309

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
2-Butanone	ND		40	8.9	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
2-Hexanone	ND		20	3.9	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
4-Methyl-2-pentanone	ND		10	1.5	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Acetone	ND		15	2.4	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Benzene	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Bromoform	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Bromomethane	ND		1.0	0.21	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Chlorobenzene	ND		2.0	0.40	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Chloroethane	ND		2.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Chloroform	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Chloromethane	ND		1.0	0.14	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
cis-1,2-Dichloroethene	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Dibromochloromethane	ND		2.0	0.27	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Ethylbenzene	ND		2.0	0.40	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Hexachloro-1,3-butadiene	ND		3.0	0.60	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Methylene Chloride	ND		15	0.24	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Naphthalene	ND		10	1.8	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
o-Xylene	ND		2.0	0.26	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Styrene	ND		2.0	0.20	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Tetrahydrofuran	ND		100	21	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Toluene	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
trans-1,3-Dichloropropene	ND		10	1.4	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Trichloroethene	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Vinyl acetate	ND		5.0	0.60	ug/Kg		07/27/16 12:33	07/27/16 13:43	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		07/27/16 12:33	07/27/16 13:43	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	99		81 - 121	07/27/16 12:33	07/27/16 13:43	1
4-Bromofluorobenzene (Surr)	103		79 - 120	07/27/16 12:33	07/27/16 13:43	1
Dibromofluoromethane (Surr)	101		78 - 118	07/27/16 12:33	07/27/16 13:43	1
Toluene-d8 (Surr)	101		79 - 119	07/27/16 12:33	07/27/16 13:43	1
Trifluorotoluene (Surr)	99		52 - 152	07/27/16 12:33	07/27/16 13:43	1

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-223309/2-A

Matrix: Solid

Analysis Batch: 223310

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 223309

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.1	19.8		ug/Kg		99	63 - 129
1,1,1,2-Tetrachloroethane	20.0	21.0		ug/Kg		105	65 - 125
1,1,2-Trichloroethane	20.1	21.1		ug/Kg		105	69 - 117
1,1,2-Trichlorotrifluoroethane	20.2	18.5		ug/Kg		92	57 - 127
1,1-Dichloroethane	20.0	20.0		ug/Kg		100	70 - 128
1,1-Dichloroethene	20.2	19.7		ug/Kg		98	58 - 123
1,2,4-Trichlorobenzene	20.0	19.1		ug/Kg		95	61 - 130
1,2,4-Trimethylbenzene	20.0	19.7		ug/Kg		98	61 - 124
1,2-Dibromoethane	20.0	20.6		ug/Kg		103	69 - 119
1,2-Dichlorobenzene	20.0	20.5		ug/Kg		102	69 - 119
1,2-Dichloroethane	20.0	19.3		ug/Kg		96	71 - 121
1,3,5-Trimethylbenzene	20.0	19.7		ug/Kg		98	64 - 125
1,3-Dichlorobenzene	20.0	19.8		ug/Kg		99	70 - 119
1,4-Dichlorobenzene	20.1	19.6		ug/Kg		98	71 - 117
2-Butanone	100	91.4		ug/Kg		91	44 - 141
2-Hexanone	100	96.7		ug/Kg		97	56 - 134
4-Methyl-2-pentanone	100	99.2		ug/Kg		99	58 - 135
Acetone	100	91.3		ug/Kg		91	53 - 134
Benzene	20.1	19.9		ug/Kg		99	70 - 118
Bromodichloromethane	20.1	21.4		ug/Kg		107	75 - 119
Bromoform	20.1	19.5		ug/Kg		97	50 - 124
Bromomethane	20.0	19.5		ug/Kg		98	41 - 148
Carbon tetrachloride	20.0	19.7		ug/Kg		99	67 - 126
Chlorobenzene	20.1	19.9		ug/Kg		99	68 - 120
Chloroethane	20.0	19.6		ug/Kg		98	48 - 142
Chloroform	20.0	19.9		ug/Kg		99	72 - 125
Chloromethane	20.0	18.5		ug/Kg		93	46 - 136
cis-1,2-Dichloroethene	20.0	20.0		ug/Kg		100	70 - 119
cis-1,3-Dichloropropene	20.1	20.5		ug/Kg		102	69 - 129
Dibromochloromethane	20.0	20.6		ug/Kg		103	64 - 129
Dichlorodifluoromethane	20.0	18.8		ug/Kg		94	38 - 140
Ethylbenzene	20.1	19.7		ug/Kg		98	66 - 119
Hexachloro-1,3-butadiene	20.0	18.7		ug/Kg		93	58 - 128
Methyl tert-butyl ether	20.0	19.4		ug/Kg		97	58 - 134
Methylene Chloride	20.1	19.0		ug/Kg		95	57 - 129
m-Xylene & p-Xylene	20.0	19.4		ug/Kg		97	69 - 126
Naphthalene	20.0	18.1		ug/Kg		91	45 - 141
o-Xylene	20.0	20.1		ug/Kg		100	66 - 127
Styrene	20.0	20.5		ug/Kg		102	68 - 120
Tetrachloroethene	20.1	19.6		ug/Kg		98	63 - 123
Tetrahydrofuran	40.0	36.0	J	ug/Kg		90	49 - 144
Toluene	20.0	19.9		ug/Kg		100	67 - 119
trans-1,2-Dichloroethene	20.0	19.9		ug/Kg		99	63 - 122
trans-1,3-Dichloropropene	20.0	20.7		ug/Kg		103	65 - 129
Trichloroethene	20.0	19.3		ug/Kg		96	68 - 118
Trichlorofluoromethane	20.0	19.2		ug/Kg		96	59 - 137
Vinyl acetate	50.0	49.9		ug/Kg		100	52 - 150
Vinyl chloride	20.0	18.6		ug/Kg		93	43 - 131

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	102		81 - 121
4-Bromofluorobenzene (Surr)	99		79 - 120
Dibromofluoromethane (Surr)	101		78 - 118
Toluene-d8 (Surr)	100		79 - 119
Trifluorotoluene (Surr)	101		52 - 152

Lab Sample ID: LCSD 580-223309/3-A

Matrix: Solid

Analysis Batch: 223310

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 223309

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD
									Limit
1,1,1-Trichloroethane	20.1	19.2		ug/Kg		96	63 - 129	3	20
1,1,1,2-Tetrachloroethane	20.0	21.0		ug/Kg		105	65 - 125	0	22
1,1,1,2-Trichloroethane	20.1	20.5		ug/Kg		102	69 - 117	3	18
1,1,1,2-Trichlorotrifluoroethane	20.2	18.0		ug/Kg		89	57 - 127	3	30
1,1-Dichloroethane	20.0	19.4		ug/Kg		97	70 - 128	3	21
1,1-Dichloroethene	20.2	19.6		ug/Kg		97	58 - 123	1	23
1,2,4-Trichlorobenzene	20.0	20.1		ug/Kg		100	61 - 130	5	22
1,2,4-Trimethylbenzene	20.0	19.9		ug/Kg		100	61 - 124	1	18
1,2-Dibromoethane	20.0	20.9		ug/Kg		104	69 - 119	2	15
1,2-Dichlorobenzene	20.0	20.7		ug/Kg		104	69 - 119	1	17
1,2-Dichloroethane	20.0	19.0		ug/Kg		95	71 - 121	2	18
1,3,5-Trimethylbenzene	20.0	20.1		ug/Kg		100	64 - 125	2	18
1,3-Dichlorobenzene	20.0	19.9		ug/Kg		99	70 - 119	0	17
1,4-Dichlorobenzene	20.1	19.9		ug/Kg		99	71 - 117	2	18
2-Butanone	100	89.9		ug/Kg		90	44 - 141	2	40
2-Hexanone	100	99.2		ug/Kg		99	56 - 134	3	22
4-Methyl-2-pentanone	100	103		ug/Kg		103	58 - 135	4	22
Acetone	100	88.9		ug/Kg		89	53 - 134	3	40
Benzene	20.1	19.3		ug/Kg		96	70 - 118	3	19
Bromodichloromethane	20.1	20.6		ug/Kg		102	75 - 119	4	19
Bromoform	20.1	19.8		ug/Kg		99	50 - 124	1	16
Bromomethane	20.0	19.6		ug/Kg		98	41 - 148	0	29
Carbon tetrachloride	20.0	19.5		ug/Kg		97	67 - 126	1	19
Chlorobenzene	20.1	19.8		ug/Kg		99	68 - 120	1	21
Chloroethane	20.0	19.6		ug/Kg		98	48 - 142	0	25
Chloroform	20.0	19.4		ug/Kg		97	72 - 125	2	17
Chloromethane	20.0	18.2		ug/Kg		91	46 - 136	1	26
cis-1,2-Dichloroethene	20.0	19.6		ug/Kg		98	70 - 119	2	19
cis-1,3-Dichloropropene	20.1	20.4		ug/Kg		102	69 - 129	0	19
Dibromochloromethane	20.0	20.4		ug/Kg		102	64 - 129	1	14
Dichlorodifluoromethane	20.0	18.5		ug/Kg		92	38 - 140	2	26
Ethylbenzene	20.1	19.2		ug/Kg		96	66 - 119	3	23
Hexachloro-1,3-butadiene	20.0	19.7		ug/Kg		99	58 - 128	5	29
Methyl tert-butyl ether	20.0	19.1		ug/Kg		95	58 - 134	2	20
Methylene Chloride	20.1	18.3		ug/Kg		91	57 - 129	4	21
m-Xylene & p-Xylene	20.0	18.9		ug/Kg		94	69 - 126	3	23
Naphthalene	20.0	20.5		ug/Kg		102	45 - 141	12	34
o-Xylene	20.0	19.5		ug/Kg		98	66 - 127	3	22
Styrene	20.0	20.2		ug/Kg		101	68 - 120	1	21
Tetrachloroethene	20.1	18.9		ug/Kg		94	63 - 123	4	20
Tetrahydrofuran	40.0	37.0	J	ug/Kg		92	49 - 144	3	40
Toluene	20.0	19.5		ug/Kg		97	67 - 119	3	19
trans-1,2-Dichloroethene	20.0	18.7		ug/Kg		93	63 - 122	6	18

TestAmerica Seattle

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-223309/3-A

Matrix: Solid

Analysis Batch: 223310

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 223309

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	
	Added	Result	Qualifier				Limits	RPD	Limit
trans-1,3-Dichloropropene	20.0	20.4		ug/Kg		102	65 - 129	1	20
Trichloroethene	20.0	19.2		ug/Kg		96	68 - 118	1	17
Trichlorofluoromethane	20.0	18.8		ug/Kg		94	59 - 137	2	40
Vinyl acetate	50.0	53.4		ug/Kg		107	52 - 150	7	30
Vinyl chloride	20.0	18.8		ug/Kg		94	43 - 131	1	40

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		81 - 121
4-Bromofluorobenzene (Surr)	99		79 - 120
Dibromofluoromethane (Surr)	101		78 - 118
Toluene-d8 (Surr)	99		79 - 119
Trifluorotoluene (Surr)	99		52 - 152

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-05

Lab Sample ID: 580-61167-1

Date Collected: 07/20/16 08:55

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB22-SS-05

Lab Sample ID: 580-61167-1

Date Collected: 07/20/16 08:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 19:33	CJ	TAL SEA

Client Sample ID: SB22-SS-20

Lab Sample ID: 580-61167-2

Date Collected: 07/20/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB22-SS-20

Lab Sample ID: 580-61167-2

Date Collected: 07/20/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 64.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 20:01	CJ	TAL SEA

Client Sample ID: SB22-SS-25

Lab Sample ID: 580-61167-3

Date Collected: 07/20/16 09:25

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB22-SS-25

Lab Sample ID: 580-61167-3

Date Collected: 07/20/16 09:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 61.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 20:29	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB22-SS-30

Lab Sample ID: 580-61167-4

Date Collected: 07/20/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB22-SS-30

Lab Sample ID: 580-61167-4

Date Collected: 07/20/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 65.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 20:57	CJ	TAL SEA

Client Sample ID: SB22-SS-35

Lab Sample ID: 580-61167-5

Date Collected: 07/20/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB22-SS-35

Lab Sample ID: 580-61167-5

Date Collected: 07/20/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 21:24	CJ	TAL SEA

Client Sample ID: SB23-SS-05

Lab Sample ID: 580-61167-6

Date Collected: 07/20/16 12:55

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-05

Lab Sample ID: 580-61167-6

Date Collected: 07/20/16 12:55

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 21:52	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-10

Lab Sample ID: 580-61167-7

Date Collected: 07/20/16 13:00

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-10

Lab Sample ID: 580-61167-7

Date Collected: 07/20/16 13:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 22:19	CJ	TAL SEA

Client Sample ID: SB23-SS-15

Lab Sample ID: 580-61167-8

Date Collected: 07/20/16 13:10

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-15

Lab Sample ID: 580-61167-8

Date Collected: 07/20/16 13:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 22:47	CJ	TAL SEA

Client Sample ID: SB23-SS-20

Lab Sample ID: 580-61167-9

Date Collected: 07/20/16 13:15

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-20

Lab Sample ID: 580-61167-9

Date Collected: 07/20/16 13:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 23:14	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-25

Lab Sample ID: 580-61167-10

Date Collected: 07/20/16 13:20

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-25

Lab Sample ID: 580-61167-10

Date Collected: 07/20/16 13:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/24/16 23:42	CJ	TAL SEA

Client Sample ID: SB23-SS-30

Lab Sample ID: 580-61167-11

Date Collected: 07/20/16 13:35

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-30

Lab Sample ID: 580-61167-11

Date Collected: 07/20/16 13:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 00:09	CJ	TAL SEA

Client Sample ID: SB23-SS-35

Lab Sample ID: 580-61167-12

Date Collected: 07/20/16 13:45

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-35

Lab Sample ID: 580-61167-12

Date Collected: 07/20/16 13:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 71.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 00:37	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-40

Lab Sample ID: 580-61167-13

Date Collected: 07/20/16 14:05

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-40

Lab Sample ID: 580-61167-13

Date Collected: 07/20/16 14:05

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 73.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 01:05	CJ	TAL SEA

Client Sample ID: SB23-SS-45

Lab Sample ID: 580-61167-14

Date Collected: 07/20/16 14:10

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223005	07/22/16 16:42	CBS	TAL SEA

Client Sample ID: SB23-SS-45

Lab Sample ID: 580-61167-14

Date Collected: 07/20/16 14:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 68.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 01:32	CJ	TAL SEA

Client Sample ID: SB23-SS-50

Lab Sample ID: 580-61167-15

Date Collected: 07/20/16 14:20

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB23-SS-50

Lab Sample ID: 580-61167-15

Date Collected: 07/20/16 14:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 74.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 02:00	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB23-SS-55

Lab Sample ID: 580-61167-16

Date Collected: 07/20/16 14:25

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB23-SS-55

Lab Sample ID: 580-61167-16

Date Collected: 07/20/16 14:25

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 69.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 15:38	CJ	TAL SEA

Client Sample ID: SB23-SS-60

Lab Sample ID: 580-61167-17

Date Collected: 07/20/16 15:20

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB23-SS-60

Lab Sample ID: 580-61167-17

Date Collected: 07/20/16 15:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 17:02	CJ	TAL SEA

Client Sample ID: SBF01-SS

Lab Sample ID: 580-61167-18

Date Collected: 07/20/16 08:00

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SBF01-SS

Lab Sample ID: 580-61167-18

Date Collected: 07/20/16 08:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 76.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 17:30	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-05

Lab Sample ID: 580-61167-19

Date Collected: 07/21/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-05

Lab Sample ID: 580-61167-19

Date Collected: 07/21/16 09:20

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 17:57	CJ	TAL SEA

Client Sample ID: SB-24-SS-10

Lab Sample ID: 580-61167-20

Date Collected: 07/21/16 09:30

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-10

Lab Sample ID: 580-61167-20

Date Collected: 07/21/16 09:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 18:25	CJ	TAL SEA

Client Sample ID: SB-24-SS-15

Lab Sample ID: 580-61167-21

Date Collected: 07/21/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-15

Lab Sample ID: 580-61167-21

Date Collected: 07/21/16 09:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 18:53	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-20

Lab Sample ID: 580-61167-22

Date Collected: 07/21/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-20

Lab Sample ID: 580-61167-22

Date Collected: 07/21/16 09:40

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 19:20	CJ	TAL SEA

Client Sample ID: SB-24-SS-25

Lab Sample ID: 580-61167-23

Date Collected: 07/21/16 09:45

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-25

Lab Sample ID: 580-61167-23

Date Collected: 07/21/16 09:45

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 19:48	CJ	TAL SEA

Client Sample ID: SB-24-SS-30

Lab Sample ID: 580-61167-24

Date Collected: 07/21/16 10:00

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-30

Lab Sample ID: 580-61167-24

Date Collected: 07/21/16 10:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 20:15	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-35

Lab Sample ID: 580-61167-25

Date Collected: 07/21/16 10:10

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-35

Lab Sample ID: 580-61167-25

Date Collected: 07/21/16 10:10

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 20:43	CJ	TAL SEA

Client Sample ID: SB-24-SS-40

Lab Sample ID: 580-61167-26

Date Collected: 07/21/16 10:30

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-40

Lab Sample ID: 580-61167-26

Date Collected: 07/21/16 10:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 21:11	CJ	TAL SEA

Client Sample ID: SB-24-SS-45

Lab Sample ID: 580-61167-27

Date Collected: 07/21/16 10:35

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-45

Lab Sample ID: 580-61167-27

Date Collected: 07/21/16 10:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 21:38	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SB-24-SS-50

Lab Sample ID: 580-61167-28

Date Collected: 07/21/16 11:30

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-50

Lab Sample ID: 580-61167-28

Date Collected: 07/21/16 11:30

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 22:06	CJ	TAL SEA

Client Sample ID: SB-24-SS-55

Lab Sample ID: 580-61167-29

Date Collected: 07/21/16 11:35

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SB-24-SS-55

Lab Sample ID: 580-61167-29

Date Collected: 07/21/16 11:35

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223063	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223067	07/25/16 22:33	CJ	TAL SEA

Client Sample ID: SBF01-072116

Lab Sample ID: 580-61167-30

Date Collected: 07/21/16 17:00

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SBF01-072116

Lab Sample ID: 580-61167-30

Date Collected: 07/21/16 17:00

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223309	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223310	07/27/16 15:06	TL1	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Client Sample ID: SBF02-072116

Lab Sample ID: 580-61167-31

Date Collected: 07/21/16 17:15

Matrix: Solid

Date Received: 07/22/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	223008	07/22/16 18:13	CBS	TAL SEA

Client Sample ID: SBF02-072116

Lab Sample ID: 580-61167-31

Date Collected: 07/21/16 17:15

Matrix: Solid

Date Received: 07/22/16 09:30

Percent Solids: 87.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			223023	07/22/16 09:50	IWH	TAL SEA
Total/NA	Analysis	8260C		1	223024	07/25/16 02:28	CJ	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	WA100007	11-06-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: CH2M Hill, Inc.
Project/Site: UPRR Freeman

TestAmerica Job ID: 580-61167-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-61167-1	SB22-SS-05	Solid	07/20/16 08:55	07/22/16 09:30
580-61167-2	SB22-SS-20	Solid	07/20/16 09:20	07/22/16 09:30
580-61167-3	SB22-SS-25	Solid	07/20/16 09:25	07/22/16 09:30
580-61167-4	SB22-SS-30	Solid	07/20/16 09:35	07/22/16 09:30
580-61167-5	SB22-SS-35	Solid	07/20/16 09:40	07/22/16 09:30
580-61167-6	SB23-SS-05	Solid	07/20/16 12:55	07/22/16 09:30
580-61167-7	SB23-SS-10	Solid	07/20/16 13:00	07/22/16 09:30
580-61167-8	SB23-SS-15	Solid	07/20/16 13:10	07/22/16 09:30
580-61167-9	SB23-SS-20	Solid	07/20/16 13:15	07/22/16 09:30
580-61167-10	SB23-SS-25	Solid	07/20/16 13:20	07/22/16 09:30
580-61167-11	SB23-SS-30	Solid	07/20/16 13:35	07/22/16 09:30
580-61167-12	SB23-SS-35	Solid	07/20/16 13:45	07/22/16 09:30
580-61167-13	SB23-SS-40	Solid	07/20/16 14:05	07/22/16 09:30
580-61167-14	SB23-SS-45	Solid	07/20/16 14:10	07/22/16 09:30
580-61167-15	SB23-SS-50	Solid	07/20/16 14:20	07/22/16 09:30
580-61167-16	SB23-SS-55	Solid	07/20/16 14:25	07/22/16 09:30
580-61167-17	SB23-SS-60	Solid	07/20/16 15:20	07/22/16 09:30
580-61167-18	SBF01-SS	Solid	07/20/16 08:00	07/22/16 09:30
580-61167-19	SB-24-SS-05	Solid	07/21/16 09:20	07/22/16 09:30
580-61167-20	SB-24-SS-10	Solid	07/21/16 09:30	07/22/16 09:30
580-61167-21	SB-24-SS-15	Solid	07/21/16 09:35	07/22/16 09:30
580-61167-22	SB-24-SS-20	Solid	07/21/16 09:40	07/22/16 09:30
580-61167-23	SB-24-SS-25	Solid	07/21/16 09:45	07/22/16 09:30
580-61167-24	SB-24-SS-30	Solid	07/21/16 10:00	07/22/16 09:30
580-61167-25	SB-24-SS-35	Solid	07/21/16 10:10	07/22/16 09:30
580-61167-26	SB-24-SS-40	Solid	07/21/16 10:30	07/22/16 09:30
580-61167-27	SB-24-SS-45	Solid	07/21/16 10:35	07/22/16 09:30
580-61167-28	SB-24-SS-50	Solid	07/21/16 11:30	07/22/16 09:30
580-61167-29	SB-24-SS-55	Solid	07/21/16 11:35	07/22/16 09:30
580-61167-30	SBF01-072116	Solid	07/21/16 17:00	07/22/16 09:30
580-61167-31	SBF02-072116	Solid	07/21/16 17:15	07/22/16 09:30

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

Loc: 580
61167

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>Steve Demus</u>		Lab PM: Allen, Kristine D		Carrier Tracking No(s):		COC No: 580-20941-7011.3	
Client Contact: Mark Ochsner		Phone: <u>509-464-7222</u>		E-Mail: kristine.allen@testamericainc.com				Page: <u>10</u> Page <u>10</u> of 3	
Company: CH2M Hill, Inc.		Due Date Requested:		Analysis Requested Field Filtered Sample (Yes or No) BT= Tissue, A= Air 8260C - 8260C - Custom List Volatile Organics Total Number of containers		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify)		Job #: Other:	
Address: 2020 SW 4th Ave Suite 300		TAT Requested (days): <u>5-day</u>							
City: Portland		PO #: Purchase Order Requested							
State, Zip: OR, 97201		WO #: 1873							
Project Name: UPRR Freeman		Project #: 58010116							
Site:		SSOW#:							
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		Special Instructions/Note:	
				Preservation Code:		F N			
<u>SB22-SS-05</u>		<u>7-20-16</u>	<u>8:55</u>	<u>G</u>	<u>Solid</u>				
<u>SB22-SS-20</u>			<u>9:20</u>		<u>Solid</u>				
<u>SB22-SS-25</u>			<u>9:25</u>		<u>Solid</u>				
<u>SB22-SS-30</u>			<u>9:35</u>		<u>Solid</u>				
<u>SB22-SS-35</u>			<u>9:40</u>		<u>Solid</u>				
<u>SB23-SS-05</u>			<u>12:55</u>		<u>Solid</u>				
<u>SB23-SS-10</u>			<u>13:00</u>		<u>Solid</u>				
<u>SB23-SS-15</u>			<u>13:10</u>		<u>Solid</u>				
<u>SB23-SS-20</u>			<u>13:15</u>		<u>Solid</u>				
<u>SB23-SS-25</u>			<u>13:20</u>		<u>Solid</u>				
<u>SB23-SS-30</u>			<u>13:35</u>		<u>Solid</u>				
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <u>[Signature]</u>		Date/Time: <u>7/21/16/16:00</u>		Company: <u>CH2M</u>		Received by: <u>[Signature]</u>		Date/Time: <u>7/22/16 0930</u>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Page 93 of 96		Cooler Temperature(s) °C and Other Remarks:		7/28/2016	



TB Cooler IR2 Cor ^{w/cs} 5.9 Unc 5.7
Cooler Dsc Lg Blu/whi @Lab
Wet/Packs Packing Bubb
Fed PO

TestAmerica Seattle

5755 8th Street East
 Tacoma, WA 98424
 Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: Steve Demus Phone: 509-464-7272		Lab PM: Allen, Kristine D E-Mail: kristine.allen@testamericainc.com		Carrier Tracking No(s):		COC No: 580-20941-7011.2 Page: Page 2 of 3			
Company: CH2M Hill, Inc. Address: 2020 SW 4th Ave Suite 300 City: Portland State, Zip: OR, 97201 Phone: Email: mark.ochsner@ch2m.com Project Name: UPRR Freeman Site:		Due Date Requested: TAT Requested (days): PO #: Purchase Order Requested WO #: 1873 Project #: 58010116 SSOW#:		Analysis Requested						Job #: Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify) Other:	
Sample Identification			Sample Date	Sample Time	Sample Type (C=comp, G=grab) BT=Tissue, A=Air	Matrix (W=water, S=solid, O=waste/sol) BT=Tissue, A=Air	Field Filtered Sample (Yes or No)	8260C - Custom List Volatile Organics	Total Number of containers	Special Instructions/Note:	
SB23-SS-35			7-20-16	13:45	Gr	Solid	X	F	N		
SB23-SS-40				14:05		Solid					
SB23-SS-45				14:10		Solid					
SB23-SS-50				14:20		Solid					
SB23-SS-55				14:25		Solid	X				
SB23-SS-60				15:20		Solid					
SBF01-SS				08:00		Solid					
SB24-SS-05			7-21-16	09:20		Solid					
SB24-SS-10				09:30		Solid					
SB24-SS-15				09:35		Solid					
SB24-SS-20				09:40		Solid					
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:	Time:		Method of Shipment:					
Relinquished by: [Signature]		Date/Time: 7-21-16 / 16:00		Company: CH2M		Received by: Tom Blanks		Date/Time: 7/22/16 0930		Company: TA-Sea	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Page 94 of 96			Cooler Temperature(s) °C and Other Remarks:			7/28/2016	

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11

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-61167-1

Login Number: 61167

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	


Data Validation Memorandums



Memorandum

October 9, 2017

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/360-NF Tel: 206-914-3141

CC: Steve Demus, Lindsey Baumann, Jesse Orth, Julie Lidstone

Subject: Analytical Results and Reduced Validation of Reports 10388373, 10390831, 10390833, 10390834, 10390956, 10390957, 10390958, 10390959, 10390960, 10390961, 10390962, 10390963, 10391003, 10391007, 10391445, 10391446, 10391449, 10391798, 10391799, 10391914, 10391927, 10392621, 10392622, 10392623, 10393159, 10393161, 10393711, 10393713, 10393714, 10393715, 10393917, 10394792, 10395114, 10395116, 10395459 and 10395460
Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May – July 2017

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington from May to July 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS) and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with a few exceptions. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

One sample had a vial with headspace used for analysis and the associated sample results were qualified as estimated due to the implied low bias (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 6).

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of a few high recoveries. The associated non-detect results were not impacted and the associated sample detections were qualified as estimated due to the implied high bias (see Table 7).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 8)

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. MS analyses were performed as specified in Table 1.



The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with the exception of two low sulfide recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 8).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of 17 trip blank samples and 3 field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, 17 trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 9)

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3.



11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments	
					Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	CrVI	Sulfide	TOC	Metals	Mercury		VOCs
ASHER-GW-060517	Asher Well	Water	06/05/2017	16:00	X	X	X	X	X	X		X	X	X	X	X	DUP - MS/MSD
LANG-GW-060617	Lang Well	Water	06/06/2017	15:50	X	X	X	X	X	X		X	X	X	X	X	MS/MSD
LASHAW-AG-GW-060617	Lashaw Well (Agricultural)	Water	06/06/2017	14:30	X	X	X	X	X	X		X	X	X	X	X	DUP
LASHAW-DOM-GW-060617	Lashaw Well (Domestic)	Water	06/06/2017	13:00	X	X	X	X	X	X		X	X	X	X	X	MS/MSD
Marlow-Inf-GW-053117	Marlow Influent	Water	05/31/2017	14:04	X	X	X	X	X	X		X	X	X	X	X	DUP - MS - MS/MSD
Marlow #2-GW-062617	Out-of-Use Marlow Well (No. 2)	Water	06/26/2017	15:00	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW01D-GW-060817	MW-1D	Water	06/08/2017	12:40	X	X	X	X	X	X		X	X	X	X	X	
MW1S-GW-060217	MW-1S	Water	06/02/2017	11:45	X	X	X	X	X	X		X	X	X	X	X	
MW02D-GW-060817	MW-2D	Water	06/08/2017	10:15	X	X	X	X	X	X		X	X	X	X	X	
MW03D-GW-060917	MW-3D	Water	06/09/2017	12:18	X	X	X	X	X	X		X	X	X	X	X	
MW04D-GW-060917	MW-4D	Water	06/09/2017	17:55	X	X	X	X	X	X		X	X	X	X	X	
MW05D-GW-060917	MW-5D	Water	06/09/2017	09:35	X	X	X	X	X	X		X	X	X	X	X	MS/MSD
MW06D-GW-061517	MW-6D	Water	06/15/2017	08:05	X	X	X	X	X	X		X	X	X	X	X	DUP - MS/MSD
MW6S-GW-060217	MW-6S	Water	06/02/2017	11:05	X	X	X	X	X	X		X	X	X	X	X	
MW7S-GW-053117	MW-7S	Water	05/31/2017	13:10	X	X	X	X	X	X		X	X	X	X	X	
MW8S-GW-060217	MW-8S	Water	06/02/2017	10:15	X	X	X	X	X	X		X	X	X	X	X	MS/MSD
MW9D-GW-062617	MW-9D	Water	06/26/2017	11:40	X	X	X	X	X	X	X	X	X	X	X	X	
MW9S-GW-060217	MW-9S	Water	06/02/2017	12:25	X	X	X	X	X	X		X	X	X	X	X	DUP
MW10S-GW-053117	MW-10S	Water	05/31/2017	11:10	X	X	X	X	X	X		X	X	X	X	X	
MW11S-GW-053117	MW-11S	Water	05/31/2017	10:10	X	X	X	X	X	X		X	X	X	X	X	
MW12S-GW-053117	MW-12S	Water	05/31/2017	09:05	X	X	X	X	X	X		X	X	X	X	X	MS/MSD
MW13S-GW-053117	MW-13S	Water	05/31/2017	12:15	X	X	X	X	X	X		X	X	X	X	X	
MW14D-GW-060917	MW-14D	Water	06/09/2017	14:34	X	X	X	X	X	X		X	X	X	X	X	
MW15D-GW-20-062617	MW-15D	Water	06/26/2017	15:15												X	
MW15D-GW-070717	MW-15D	Water	07/07/2017	09:20	X	X	X	X	X	X		X	X	X	X	X	DUP - MS/MSD
MW16D-GW-060717	MW-16D	Water	06/07/2017	10:55	X	X	X	X	X	X		X	X	X	X	X	DUP - MS - MS/MSD
FD03-GW-060717	MW-16D	Water	06/07/2017	--	X	X	X	X	X	X		X	X	X	X	X	FD (MW16D-GW-060717)

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments	
					Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	CrVI	Sulfide	TOC	Metals	Mercury		VOCs
MW17D-GW-061417	MW-17D	Water	06/14/2017	12:30	X	X	X	X	X	X		X	X	X	X	X	DUP
MW18D-GW-060717	MW-18D	Water	06/07/2017	15:20	X	X	X	X	X	X		X	X	X	X	X	
MW19D-GW-051017	MW-19D	Water	05/10/2017	12:03	X			X	X	X		X	X	X	X	X	
MW19D-GW-061517	MW-19D	Water	06/15/2017	10:40	X	X	X	X	X	X		X	X	X	X	X	
MW20D-GW-depth-061517	MW-20D	Water	06/15/2017	12:20												X	
MW20D-GW-070717	MW-20D	Water	07/07/2017	12:00	X	X	X	X	X	X		X	X	X	X	X	
MW21D-GW-20-070517	MW-21D	Water	07/05/2017	11:15												X	
MW21D-GW-071117	MW-21D	Water	07/11/2017	14:10	X	X	X	X	X	X		X	X	X	X	X	
Randall-Inf-GW-053117	Randall Influent	Water	05/31/2017	11:25	X	X	X	X	X	X		X	X	X	X	X	
FD01-GW-053117	Randall Influent	Water	05/31/2017	--	X	X	X	X	X	X		X	X	X	X	X	
Reed-GW-062017	Reed Well (W30)	Water	06/20/2017	13:15	X	X	X	X	X	X		X	X	X	X	X	
Silva-GW-060117	Silva Well	Water	06/01/2017	10:00	X		X	X	X	X		X	X	X	X	X	
Stark-GW-060117	Stark Well (W15)	Water	06/01/2017	11:00	X			X	X	X		X	X	X	X	X	
FD02-GW-060117	Stark Well (W15)	Water	06/01/2017	--	X		X	X	X	X		X	X	X	X	X	
Thorson-GW-062617	Thorson Well	Water	06/26/2017	12:40	X	X	X	X	X	X	X	X	X	X	X	X	
W20-GW-061417	Out-of-Use Marlow Well (W20)	Water	06/14/2017	15:55	X	X	X	X	X	X		X	X	X	X	X	
W26-GW-061517	Out-of-Use Freeman School Well (W26)	Water	06/15/2017	13:20	X	X	X	X	X	X		X	X	X	X	X	
WS5-Inf-GW-061417	WS-5	Water	06/14/2017	08:40	X	X	X	X	X	X		X	X	X	X	X	
WS5-Eff-GW-061417	WS-5	Water	06/14/2017	07:40			X									X	
Trip Blank-051017	--	Water	05/10/2017	--												X	
trip blank-053117	--	Water	05/31/2017	--												X	
Trip Blank-053117	--	Water	05/31/2017	--												X	
Trip Blank-053117	--	Water	05/31/2017	--												X	
Trip Blank	--	Water	05/31/2017	--												X	
Trip Blank-060117	--	Water	06/01/2017	--												X	
Trip Blank	--	Water	06/02/2017	--												X	
TRIP BLANK-060517	--	Water	06/05/2017	--												X	

Table 1

**Sample Collection and Analysis Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments		
					Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	CrVI	Sulfide	TOC	Metals	Mercury		VOCs	
TRIP BLANK-060617	--	Water	06/06/2017	--													X	Trip Blank
TRIP BLANK-060617	--	Water	06/06/2017	--													X	Trip Blank
TB-060817	--	Water	06/08/2017	--													X	Trip Blank
TB-060917	--	Water	06/09/2017	--													X	Trip Blank
TB-061417	--	Water	06/14/2017	--													X	Trip Blank
Trip Blank	--	Water	06/15/2017	--													X	Trip Blank
TB-061517	--	Water	06/15/2017	--													X	Trip Blank
TRIP BLANK-062017	--	Water	06/20/2017	--													X	Trip Blank
TB-070717	--	Water	07/07/2017	--													X	Trip Blank
TB-071117	--	Water	07/11/2017	--													X	Trip Blank

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- CrVI - Hexavalent Chromium
- TOC - Total Organic Carbon
- Anions - Chloride, Nitrate, Sulfate
- "--" - Not Applicable

Table 2
Analytical Methods
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK 175 ⁽²⁾	Water
Metals	SW-846 6010C ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾	Water
Nitrate+Nitrite	EPA 353.2 ⁽⁴⁾	Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500-S2 D ⁽³⁾	Water
Hexavalent Chromium	SM 3500-Cr D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Marlow Influent
Sample Name:	ASHER-GW-060517	LANG-GW-060617	LASHAW-AG-GW-060617	LASHAW-DOM-GW-060617	Marlow-Inf-GW-053117
Sample Date:	06/05/2017	06/06/2017	06/06/2017	06/06/2017	05/31/2017
Depth:	90 ft bgs	225 ft bgs	--	150 ft bgs	80 ft bgs

Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	30.9	<14.4 J	<20.2	<32.3	<9.5 J
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Marlow Influent
Sample Name:	ASHER-GW-060517	LANG-GW-060617	LASHAW-AG-GW-060617	LASHAW-DOM-GW-060617	Marlow-Inf-GW-053117
Sample Date:	06/05/2017	06/06/2017	06/06/2017	06/06/2017	05/31/2017
Depth:	90 ft bgs	225 ft bgs	--	150 ft bgs	80 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	1.6
Carbon tetrachloride	µg/L	<0.079	<0.079	3.3	0.77
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21	0.22 J	9.3
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.63 J	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Marlow Influent
Sample Name:	ASHER-GW-060517	LANG-GW-060617	LASHAW-AG-GW-060617	LASHAW-DOM-GW-060617	Marlow-Inf-GW-053117
Sample Date:	06/05/2017	06/06/2017	06/06/2017	06/06/2017	05/31/2017
Depth:	90 ft bgs	225 ft bgs	--	150 ft bgs	80 ft bgs
Parameters		Unit			
Volatile Organic Compounds (Continued)					
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	2.9
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.9 J	<6.2 J	<2.2 J	<1.4 J
Metals					
Chromium VI (hexavalent)	mg/L	--	--	--	--
Aluminum (dissolved)	µg/L	<13.5	<13.5	<13.5	<13.5
Antimony (dissolved)	µg/L	<2.5	2.6 J	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	86.0	15.3	35.4	9.5 J
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	69100	42300	31800	25800
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.96 J	<0.51	<0.51	<0.51
Copper (dissolved)	µg/L	354	9.0 J	2.2 J	2.4 J
Iron (dissolved)	µg/L	<18.0	<18.0	32.0 J	<18.0
Lead (dissolved)	µg/L	2.1 J	<1.9	<1.9	<1.9
Magnesium (dissolved)	µg/L	20200	12300	12900	12400
Manganese (dissolved)	µg/L	0.88 J	9.5	29.8	0.57 J

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Marlow Influent
Sample Name:	ASHER-GW-060517	LANG-GW-060617	LASHAW-AG-GW-060617	LASHAW-DOM-GW-060617	Marlow-Inf-GW-053117
Sample Date:	06/05/2017	06/06/2017	06/06/2017	06/06/2017	05/31/2017
Depth:	90 ft bgs	225 ft bgs	--	150 ft bgs	80 ft bgs
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	2.0 J
Potassium (dissolved)	µg/L	<1310 J	<1320 J	4430	3780
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	21200	17100	16700	14700
Thallium (dissolved)	µg/L	4.8 J	<3.8	<3.8	<3.8
Vanadium (dissolved)	µg/L	10.7 J	5.6 J	3.1 J	11.8 J
Zinc (dissolved)	µg/L	30.0	75.6	94.6	11.0 J
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	248	185	168	144
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	10.6	1.8	2.7	1.8
Nitrate (as N)	mg/L	8.1 J	0.46 J	0.14 J	2.1 J
Nitrite/Nitrate	mg/L	8.1	0.50	0.15	2.0
Sulfate	mg/L	36.2	2.1	4.8	5.5
Sulfide	mg/L	0.0071 J	0.011 J	0.0071 J	0.0071 J
Total dissolved solids (TDS)	mg/L	403	250	234	226
Total organic carbon (TOC)	mg/L	1.1	0.22 J	0.33 J	0.43 J

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow #2-GW-062617	MW01D-GW-060817	MW1S-GW-060217	MW02D-GW-060817	MW03D-GW-060917
Sample Date:	06/26/2017	06/08/2017	06/02/2017	06/08/2017	06/09/2017
Depth:	80 ft bgs	93.5 ft bgs	20 ft bgs	140.5 ft bgs	173 ft bgs
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	0.092 J	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	0.22 J	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	28.0 J	<0.64	<0.64	2.9 J
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	0.36 J	<0.042

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow #2-GW-062617	MW01D-GW-060817	MW1S-GW-060217	MW02D-GW-060817	MW03D-GW-060917
Sample Date:	06/26/2017	06/08/2017	06/02/2017	06/08/2017	06/09/2017
Depth:	80 ft bgs	93.5 ft bgs	20 ft bgs	140.5 ft bgs	173 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	0.61 J	<0.20	<0.20
Carbon tetrachloride	µg/L	1.1	<0.079	<0.079	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	1.1	<0.21	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	0.74 J	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow #2-GW-062617	MW01D-GW-060817	MW1S-GW-060217	MW02D-GW-060817	MW03D-GW-060917
Sample Date:	06/26/2017	06/08/2017	06/02/2017	06/08/2017	06/09/2017
Depth:	80 ft bgs	93.5 ft bgs	20 ft bgs	140.5 ft bgs	173 ft bgs
Parameters		Unit			
Volatile Organic Compounds (Continued)					
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	0.31 J
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	6.5 J
Ethene	µg/L	<0.68	1.2 J	<0.68	2.0 J
Methane	µg/L	<2.2 J	10.2	<1.7 J	128
Metals					
Chromium VI (hexavalent)	mg/L	<0.0021 J	--	--	--
Aluminum (dissolved)	µg/L	<8.6	23.7 J	36.8 J	<13.5
Antimony (dissolved)	µg/L	<3.1	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<5.2	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	43.6	66.6	294	119
Beryllium (dissolved)	µg/L	<0.11	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.46	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	38800	49200	117000	39100
Chromium (dissolved)	µg/L	<0.50	<2.0	4.1 J	<2.0
Cobalt (dissolved)	µg/L	<1.1	2.8 J	2.4 J	1.4 J
Copper (dissolved)	µg/L	1.7 J	<0.89	2.2 J	<0.89
Iron (dissolved)	µg/L	<16.7	664	87.8	2910
Lead (dissolved)	µg/L	<3.0	<1.9	2.7 J	2.3 J
Magnesium (dissolved)	µg/L	10600	12100	31900	11600
Manganese (dissolved)	µg/L	56.0	324	251	1870

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow #2-GW-062617	MW01D-GW-060817	MW1S-GW-060217	MW02D-GW-060817	MW03D-GW-060917
Sample Date:	06/26/2017	06/08/2017	06/02/2017	06/08/2017	06/09/2017
Depth:	80 ft bgs	93.5 ft bgs	20 ft bgs	140.5 ft bgs	173 ft bgs
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.6	3.8 J	<1.6
Potassium (dissolved)	µg/L	836 J	2540	548 J	5130
Selenium (dissolved)	µg/L	<6.4	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.27	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	13800	11400	46800	17600
Thallium (dissolved)	µg/L	6.0 J	3.9 J	7.0 J	<3.8
Vanadium (dissolved)	µg/L	0.64 J	1.1 J	5.1 J	0.53 J
Zinc (dissolved)	µg/L	11.1 J	5.4 J	74.4	<1.4
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	155	200	475	190
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	3.9	1.9 J	7.8	1.6 J
Nitrate (as N)	mg/L	0.38	<0.013 J	0.055 J	0.042 J
Nitrite/Nitrate	mg/L	0.38	0.014 J	0.025	0.030
Sulfate	mg/L	13.2	2.3 J	14.9 J	0.43 J
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	193	237	561	205
Total organic carbon (TOC)	mg/L	3.2	1.3	3.4	1.6

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

	Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-7S
	Sample Name:	MW04D-GW-060917	MW05D-GW-060917	MW06D-GW-061517	MW6S-GW-060217	MW7S-GW-053117
	Sample Date:	06/09/2017	06/09/2017	06/15/2017	06/02/2017	05/31/2017
	Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	43.5 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	1.6	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	0.70	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	8.8 J	13.0 J	<0.64	5.3 J
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-7S
Sample Name:	MW04D-GW-060917	MW05D-GW-060917	MW06D-GW-061517	MW6S-GW-060217	MW7S-GW-053117
Sample Date:	06/09/2017	06/09/2017	06/15/2017	06/02/2017	05/31/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	43.5 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	5.1	<0.079	3.6	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	0.89 J	<0.21	0.30 J	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	0.58 J
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	0.18 J
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	0.11 J
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	0.37 J
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-7S
Sample Name:	MW04D-GW-060917	MW05D-GW-060917	MW06D-GW-061517	MW6S-GW-060217	MW7S-GW-053117
Sample Date:	06/09/2017	06/09/2017	06/15/2017	06/02/2017	05/31/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	43.5 ft bgs
Parameters					
Unit					
Volatile Organic Compounds (Continued)					
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	0.095 J
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.9 J	<1.8 J	<2.2 J	<2.0 J
Metals					
Chromium VI (hexavalent)	mg/L	--	--	--	--
Aluminum (dissolved)	µg/L	<13.5	<13.5	<13.5	<13.5
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	48.5	89.4	20.2	43.1
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	0.81 J
Calcium (dissolved)	µg/L	40100	46800	33800	36000
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.85 J	0.81 J	0.78 J	<0.51
Copper (dissolved)	µg/L	<0.89	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	<18.0	<18.0	<18.0	18.5 J
Lead (dissolved)	µg/L	<1.9	<1.9	<1.9	2.4 J
Magnesium (dissolved)	µg/L	13600	14100	15300	10000
Manganese (dissolved)	µg/L	6.6	20.6	26.1	3.4 J
					13.8

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

	Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-7S
	Sample Name:	MW04D-GW-060917	MW05D-GW-060917	MW06D-GW-061517	MW6S-GW-060217	MW7S-GW-053117
	Sample Date:	06/09/2017	06/09/2017	06/15/2017	06/02/2017	05/31/2017
	Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	43.5 ft bgs
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	3090	2990	5990	627 J	630 J
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	19200	23600	17200	12100	11600
Thallium (dissolved)	µg/L	<3.8	<3.8	<3.8	4.2 J	<3.8
Vanadium (dissolved)	µg/L	10.4 J	4.2 J	16.9	5.0 J	1.8 J
Zinc (dissolved)	µg/L	18.4 J	1.6 J	1.8 J	8.9 J	16.3 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	189	213	185	148	98.3
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	64.3	<15.8	<15.8
Chloride	mg/L	6.4	2.2	3.9	2.4	10.9
Nitrate (as N)	mg/L	1.5 J	0.53 J	0.69 J	0.098 J	7.8 J
Nitrite/Nitrate	mg/L	1.6	0.59	0.72 J	0.093	8.3
Sulfate	mg/L	16.7 J	5.4 J	5.0	1.6 J	21.7
Sulfide	mg/L	<0.0050	<0.0050	<0.0050 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	262	276	246	208	258
Total organic carbon (TOC)	mg/L	1.0	0.84 J	0.49 J	1.0	0.67 J

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	
Sample Name:	MW8S-GW-060217	MW9D-GW-062617	MW9S-GW-060217	MW10S-GW-053117	MW11S-GW-053117	
Sample Date:	06/02/2017	06/26/2017	06/02/2017	05/31/2017	05/31/2017	
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	71 ft bgs	72.5 ft bgs	
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.13	<0.064	<0.32	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.11	<0.057	<0.28	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.11	<0.055	<0.28	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.13	<0.064	<0.32	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.11	<0.055	<0.28	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.14	<0.069	<0.34	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.16	<0.082	<0.41	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.34	<0.17	<0.85	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.38	<0.19	<0.95	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.28	<0.14	<0.70	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.14	<0.068	<0.34	<0.068	0.98
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.2	<0.60	<3.0	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.18	<0.092	<0.46	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.16	<0.078	<0.39	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.14	<0.072	<0.36	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.33	<0.16	<0.82	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.13	<0.066	<0.33	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.084	<0.042	<0.21	<0.042	0.36 J
1,3-Dichlorobenzene	µg/L	<0.17	<0.085	<0.42	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.12	<0.059	<0.30	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.16	<0.081	<0.40	<0.081	<0.081
1,4-Dioxane	µg/L	<9.6	<4.8	<24.0	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.17	<0.087	<0.44	0.45 J	0.56 J
2,2-Dichloropropane	µg/L	<0.19	<0.096	<0.48	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.2	<1.1	<5.5	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.17	<0.084	<0.42	<0.084	<0.084
2-Hexanone	µg/L	<0.38	<0.19	<0.96	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.19	<0.094	<0.47	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.096	<0.048	<0.24	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<1.6	<0.80	<4.0	<0.80	<0.80
Acetone	µg/L	<5.5 J	18.5 J	<3.2	<0.64	<0.64
Acrolein	µg/L	<4.2	<2.1	<10.5	<2.1	<2.1
Acrylonitrile	µg/L	<0.98	<0.49	<2.4	<0.49	<0.49
Benzene	µg/L	<0.084	<0.042	<0.21	<0.042	<0.042

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	
Sample Name:	MW8S-GW-060217	MW9D-GW-062617	MW9S-GW-060217	MW10S-GW-053117	MW11S-GW-053117	
Sample Date:	06/02/2017	06/26/2017	06/02/2017	05/31/2017	05/31/2017	
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	71 ft bgs	72.5 ft bgs	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Bromobenzene	µg/L	<0.17	<0.087	<0.44	<0.087	<0.087
Bromodichloromethane	µg/L	<0.14	<0.068	<0.34	<0.068	<0.068
Bromoform	µg/L	<0.22	<0.11	<0.55	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.40	<0.20	<1.0	<0.20	<0.20
Carbon disulfide	µg/L	1.2 J	0.28 J	2.7 J	0.66 J	<0.20
Carbon tetrachloride	µg/L	190	104	512	34.0	<0.079
Chlorobenzene	µg/L	<0.13	<0.066	<0.33	<0.066	<0.066
Chlorobromomethane	µg/L	<0.16	<0.082	<0.41	<0.082	<0.082
Chloroethane	µg/L	<0.24	<0.12	<0.60	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	49.5	4.2	72.4	2.3	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.080	<0.40	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.24	<0.12	<0.60	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.14	<0.069	<0.34	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.13	<0.064	<0.32	<0.064	<0.064
Dibromochloromethane	µg/L	<0.096	<0.048	<0.24	<0.048	<0.048
Dibromomethane	µg/L	<0.28	<0.14	<0.70	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.15	<0.075	<0.38	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.11	<0.054	<0.27	<0.054	<0.054
Diisopropyl ether	µg/L	<0.10	<0.050	<0.25	<0.050	<0.050
Ethylbenzene	µg/L	<0.15	<0.075	<0.38	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.26	<0.13	<0.65	<0.13	<0.13
Isopropyl benzene	µg/L	<0.13	<0.064	<0.32	<0.064	<0.064
m&p-Xylenes	µg/L	<0.22	<0.11	<0.55	<0.11	0.11 J
Methyl tert butyl ether (MTBE)	µg/L	<0.094	<0.047	<0.24	<0.047	<0.047
Methylene chloride	µg/L	<0.94 J	<0.097	<3.3 J	<0.097	<0.097
N-Butylbenzene	µg/L	<0.32	<0.16	<0.80	<0.16	<0.16
N-Propylbenzene	µg/L	<0.098	<0.049	<0.24	<0.049	<0.049
Naphthalene	µg/L	<0.13	<0.064	<0.32	<0.064	<0.064
o-Xylene	µg/L	<0.088	<0.044	<0.22	<0.044	0.15 J
Styrene	µg/L	<0.11	<0.056	<0.28	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.15	<0.073	<0.36	<0.073	<0.073
tert-Butyl alcohol	µg/L	<1.8	<0.89	<4.4	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.12	<0.062	<0.31	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.10	<0.051	<0.26	<0.051	<0.051

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	
Sample Name:	MW8S-GW-060217	MW9D-GW-062617	MW9S-GW-060217	MW10S-GW-053117	MW11S-GW-053117	
Sample Date:	06/02/2017	06/26/2017	06/02/2017	05/31/2017	05/31/2017	
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	71 ft bgs	72.5 ft bgs	
Parameters						
Unit						
Volatile Organic Compounds (Continued)						
Tetrachloroethene	µg/L	<0.26	<0.13	<0.65	<0.13	<0.13
Tetrahydrofuran	µg/L	<3.0	<1.5	<7.5	<1.5	<1.5
Toluene	µg/L	<0.12	<0.059	<0.30	<0.059	<0.098 J
trans-1,2-Dichloroethene	µg/L	<0.30	<0.15	<0.75	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.088	<0.044	<0.22	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.90	<0.45	<2.2	<0.45	<0.45
Trichloroethene	µg/L	<0.088	<0.044	<0.22	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.11	<0.055	<0.28	<0.055	<0.055
Trifluorotrichloroethane (CFC-113)	µg/L	<0.26	<0.13	<0.65	<0.13	<0.13
Vinyl acetate	µg/L	<0.24	<0.12	<0.60	<0.12	<0.12
Vinyl chloride	µg/L	<0.20	<0.098	<0.49	<0.098	<0.098
Xylenes (total)	µg/L	<0.31	<0.15	<0.77	<0.15	<0.15
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<2.0 J	<1.5 J	<1.5 J	20.1	<2.6 J
Metals						
Chromium VI (hexavalent)	mg/L	--	<0.0086 J	--	--	--
Aluminum (dissolved)	µg/L	96.2 J	11.5 J	219	16.3 J	32.4 J
Antimony (dissolved)	µg/L	<2.5	<3.1	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	6.8 J	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	43.6	62.1	77.3	71.7	66.1
Beryllium (dissolved)	µg/L	<0.064	<0.11	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.46	1.7 J	0.33 J	0.82 J
Calcium (dissolved)	µg/L	46000	50500	68200	75000	46100
Chromium (dissolved)	µg/L	<2.0	<0.50	<2.0	<2.0	2.4 J
Cobalt (dissolved)	µg/L	<0.51	<1.1	0.58 J	0.78 J	1.7 J
Copper (dissolved)	µg/L	2.1 J	2.0 J	0.98 J	1.1 J	1.0 J
Iron (dissolved)	µg/L	204	<16.7	451	33.1 J	63.3
Lead (dissolved)	µg/L	3.0 J	<3.0	2.4 J	2.9 J	1.9 J
Magnesium (dissolved)	µg/L	10900	14400	15500	21200	13400
Manganese (dissolved)	µg/L	76.8	10.9	89.8	80.8	250

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S
Sample Name:	MW8S-GW-060217	MW9D-GW-062617	MW9S-GW-060217	MW10S-GW-053117	MW11S-GW-053117
Sample Date:	06/02/2017	06/26/2017	06/02/2017	05/31/2017	05/31/2017
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	71 ft bgs	72.5 ft bgs

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	0.15 J	<0.062
Nickel (dissolved)	µg/L	2.1 J	<1.1	<1.6	<1.6	2.2 J
Potassium (dissolved)	µg/L	473 J	2220 J	1320 J	744 J	794 J
Selenium (dissolved)	µg/L	<4.5	<6.4	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.27	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	13700	14600	14200	13100	19800
Thallium (dissolved)	µg/L	4.1 J	6.4 J	6.7 J	5.5 J	5.2 J
Vanadium (dissolved)	µg/L	2.0 J	6.2 J	2.5 J	4.1 J	6.1 J
Zinc (dissolved)	µg/L	31.9	3.2 J	27.3	9.9 J	14.6 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	131	162	83.9	283	204
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	17.5 J	<15.8	18.8 J
Chloride	mg/L	3.9	12.0	31.7	1.4	1.6
Nitrate (as N)	mg/L	7.7 J	4.4	35.4 J	0.33 J	0.047 J
Nitrite/Nitrate	mg/L	7.8	4.0	15.1	0.43	0.076
Sulfate	mg/L	19.6 J	35.5	79.1 J	2.6	2.9
Sulfide	mg/L	0.0063 J	<0.0050	0.0075 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	289	319	523	345	273
Total organic carbon (TOC)	mg/L	1.6	0.61 J	1.4	1.1	0.77 J

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

	Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-15D
	Sample Name:	MW12S-GW-053117	MW13S-GW-053117	MW14D-GW-060917	MW15D-GW-20-062617	MW15D-GW-070717
	Sample Date:	05/31/2017	05/31/2017	06/09/2017	06/26/2017	07/07/2017
	Depth:	51 ft bgs	26 ft bgs	127 ft bgs	20 ft bgs	126 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	1.1	0.69	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	0.40 J	0.18 J	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	0.75 J	0.36 J	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	0.21 J	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	2.3 J	<0.80
Acetone	µg/L	11.6 J	1.8 J	<0.64	9.2 J	<5.7 J
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-15D
Sample Name:	MW12S-GW-053117	MW13S-GW-053117	MW14D-GW-060917	MW15D-GW-20-062617	MW15D-GW-070717
Sample Date:	05/31/2017	05/31/2017	06/09/2017	06/26/2017	07/07/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	20 ft bgs	126 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	<0.079	<0.079	<0.079	2.1 8.9
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21	<0.21	0.26 J 0.48 J
Chloromethane (Methyl chloride)	µg/L	1.6 J	0.76 J	0.54 J	<0.080 <0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	0.17 J	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	0.059 J	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	0.24 J	0.071 J	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-15D
Sample Name:	MW12S-GW-053117	MW13S-GW-053117	MW14D-GW-060917	MW15D-GW-20-062617	MW15D-GW-070717
Sample Date:	05/31/2017	05/31/2017	06/09/2017	06/26/2017	07/07/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	20 ft bgs	126 ft bgs
Parameters					
Unit					
Volatile Organic Compounds (Continued)					
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.21 J	<0.10 J	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	--
Ethene	µg/L	0.80 J	<0.68	<0.68	--
Methane	µg/L	<1.1	<2.6 J	<2.1 J	--
Metals					
Chromium VI (hexavalent)	mg/L	--	--	--	--
Aluminum (dissolved)	µg/L	134 J	22.9 J	17.0 J	--
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	--
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	--
Barium (dissolved)	µg/L	206	70.5	28.4	--
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	--
Cadmium (dissolved)	µg/L	3.6	1.2 J	<0.30	--
Calcium (dissolved)	µg/L	84200	38900	31100	--
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	--
Cobalt (dissolved)	µg/L	2.6 J	0.57 J	1.4 J	--
Copper (dissolved)	µg/L	1.4 J	<0.89	<0.89	--
Iron (dissolved)	µg/L	121	34.0 J	128	--
Lead (dissolved)	µg/L	3.2 J	<1.9	<1.9	--
Magnesium (dissolved)	µg/L	24500	11600	9490	--
Manganese (dissolved)	µg/L	376	23.3	431	--

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-15D	
Sample Name:	MW12S-GW-053117	MW13S-GW-053117	MW14D-GW-060917	MW15D-GW-20-062617	MW15D-GW-070717	
Sample Date:	05/31/2017	05/31/2017	06/09/2017	06/26/2017	07/07/2017	
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	20 ft bgs	126 ft bgs	
Parameters						
	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.062	1.5	<0.062	--	<0.062
Nickel (dissolved)	µg/L	6.4 J	<1.6	<1.6	--	<1.1
Potassium (dissolved)	µg/L	827 J	1260 J	504 J	--	2780
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	--	<6.4
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	--	<0.27
Sodium (dissolved)	µg/L	37200	15400	22500	--	16000
Thallium (dissolved)	µg/L	5.6 J	3.9 J	<3.8	--	<4.8
Vanadium (dissolved)	µg/L	3.3 J	9.9 J	5.2 J	--	10.2 J
Zinc (dissolved)	µg/L	25.6	28.4	6.2 J	--	<1.8
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	256	174	154	--	174
Chemical oxygen demand (COD)	mg/L	34.9 J	<15.8	<15.8	--	<15.8
Chloride	mg/L	45.8	1.5	2.1	--	3.0
Nitrate (as N)	mg/L	5.9 J	0.20 J	0.050 J	--	1.8 J
Nitrite/Nitrate	mg/L	6.2	0.23	0.035	--	1.9
Sulfate	mg/L	39.7	4.2	17.6 J	--	7.1
Sulfide	mg/L	<0.0050	<0.0050	0.0067 J	--	<0.0050
Total dissolved solids (TDS)	mg/L	504	239	242	--	235
Total organic carbon (TOC)	mg/L	3.3	0.74 J	3.2	--	0.66 J

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-16D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW16D-GW-060717	FD03-GW-060717	MW17D-GW-061417	MW18D-GW-060717	MW19D-GW-051017
Sample Date:	06/07/2017	06/07/2017	06/14/2017	06/07/2017	05/10/2017
Depth:	100.5 ft bgs	100.5 ft bgs Duplicate	214 ft bgs	155 ft bgs	--
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	9.5 J	<0.64	<0.64	50.4 J
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

	Location ID:	MW-16D	MW-16D	MW-17D	MW-18D	MW-19D
	Sample Name:	MW16D-GW-060717	FD03-GW-060717	MW17D-GW-061417	MW18D-GW-060717	MW19D-GW-051017
	Sample Date:	06/07/2017	06/07/2017	06/14/2017	06/07/2017	05/10/2017
	Depth:	100.5 ft bgs	100.5 ft bgs Duplicate	214 ft bgs	155 ft bgs	--
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	7.7	<0.20	0.25 J
Carbon tetrachloride	µg/L	<0.079	<0.079	<0.079	<0.079	334
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21	<0.21	<0.21	27.3
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097	0.48 J
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051	<0.051

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	MW-16D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW16D-GW-060717	FD03-GW-060717	MW17D-GW-061417	MW18D-GW-060717	MW19D-GW-051017
Sample Date:	06/07/2017	06/07/2017	06/14/2017	06/07/2017	05/10/2017
Depth:	100.5 ft bgs	100.5 ft bgs Duplicate	214 ft bgs	155 ft bgs	--
Parameters					
Unit					
Volatile Organic Compounds (Continued)					
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<0.87
Ethene	µg/L	<0.68	<0.68	2.2 J	<0.77
Methane	µg/L	<1.8 J	<1.6 J	<1.7 J	18.7
Metals					
Chromium VI (hexavalent)	mg/L	--	--	--	--
Aluminum (dissolved)	µg/L	<13.5	<13.5	94.9 J	<13.5
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	56.8	59.2	71.0	17.9
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	59300	61500	43200	22500
Chromium (dissolved)	µg/L	<2.0	<2.0	3.2 J	3.0 J
Cobalt (dissolved)	µg/L	0.63 J	0.60 J	1.2 J	<0.51
Copper (dissolved)	µg/L	<0.89	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	<18.0	<18.0	99.9	83.9
Lead (dissolved)	µg/L	<1.9	<1.9	<1.9	2.3 J
Magnesium (dissolved)	µg/L	17800	18500	18400	15400
Manganese (dissolved)	µg/L	1.2 J	1.3 J	236	53.4
					32.8

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-16D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW16D-GW-060717	FD03-GW-060717	MW17D-GW-061417	MW18D-GW-060717	MW19D-GW-051017
Sample Date:	06/07/2017	06/07/2017	06/14/2017	06/07/2017	05/10/2017
Depth:	100.5 ft bgs	100.5 ft bgs Duplicate	214 ft bgs	155 ft bgs	--
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	2.4 J	<1.6
Potassium (dissolved)	µg/L	<1480 J	<1550 J	12800	3830
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	17100	17900	56300	19500
Thallium (dissolved)	µg/L	<3.8	4.6 J	<3.8	<3.8
Vanadium (dissolved)	µg/L	9.3 J	9.7 J	2.1 J	0.72 J
Zinc (dissolved)	µg/L	<1.4	<1.4	6.9 J	2.6 J
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	219	219	186	160
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	99.8	<15.8
Chloride	mg/L	7.3 J	7.3 J	28.4	3.0 J
Nitrate (as N)	mg/L	6.0 J	6.0 J	<0.013 J	0.037 J
Nitrite/Nitrate	mg/L	6.0	6.0	<0.0075	<0.0075
Sulfate	mg/L	23.4 J	23.5 J	98.1	8.3 J
Sulfide	mg/L	<0.0050	<0.0050	0.95 J	<0.0050
Total dissolved solids (TDS)	mg/L	347	372	446	212
Total organic carbon (TOC)	mg/L	1.0	1.0	20.7	0.69 J

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
Sample Name:	MW19D-GW-061517	MW20D-GW-depth-061517	MW20D-GW-070717	MW21D-GW-20-070517	MW21D-GW-071117
Sample Date:	06/15/2017	06/15/2017	07/07/2017	07/05/2017	07/11/2017
Depth:	167 ft bgs	94.5-97.5 ft bgs	140 ft bgs	20 ft bgs	120 ft bgs

Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.13	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.11	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.11	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.13	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.11	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.14	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.16	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.34	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.38	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.28	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.14	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.2	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.18	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.16	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.14	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.33	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.13	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.084	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.17	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.12	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.16	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<9.6	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.17	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.19	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.2	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.17	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.38	1.1 J	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.19	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.096	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<1.6	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<1.3	<7.7 J	<4.6 J	<0.64	18.4 J
Acrolein	µg/L	<4.2	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.98	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.084	<0.042	<0.042	<0.042	<0.042

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
Sample Name:	MW19D-GW-061517	MW20D-GW-depth-061517	MW20D-GW-070717	MW21D-GW-20-070517	MW21D-GW-071117
Sample Date:	06/15/2017	06/15/2017	07/07/2017	07/05/2017	07/11/2017
Depth:	167 ft bgs	94.5-97.5 ft bgs	140 ft bgs	20 ft bgs	120 ft bgs

Parameters	Unit	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
Volatile Organic Compounds (Continued)						
Bromobenzene	µg/L	<0.17	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.14	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.22	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.40	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	1.1 J	<0.20	0.29 J	<0.20	<0.20
Carbon tetrachloride	µg/L	412	29.4	32.1	<0.079	<0.079
Chlorobenzene	µg/L	<0.13	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.16	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.24	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	25.0	1.0	1.3	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.24	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.14	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.13	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.096	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.28	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.15	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.11	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.10	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.15	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.13	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.22	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.094	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.19	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.32	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.098	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.13	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.088	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.11	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.15	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<1.8	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.12	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.10	<0.051	<0.051	<0.051	<0.051

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID:	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
Sample Name:	MW19D-GW-061517	MW20D-GW-depth-061517	MW20D-GW-070717	MW21D-GW-20-070517	MW21D-GW-071117
Sample Date:	06/15/2017	06/15/2017	07/07/2017	07/05/2017	07/11/2017
Depth:	167 ft bgs	94.5-97.5 ft bgs	140 ft bgs	20 ft bgs	120 ft bgs

Parameters	Unit	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
Volatiles Organic Compounds (Continued)						
Tetrachloroethene	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<3.0	3.1 J	<1.5	<1.5	<1.5
Toluene	µg/L	<0.12	<0.059	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.30	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.088	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.90	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.088	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.11	<0.055	<0.055	<0.055	<0.055
Trifluorotrichloroethane (CFC-113)	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.24	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.20	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.31	<0.15	<0.15	<0.15	<0.15
Dissolved Gases						
Ethane	µg/L	<4.9	--	<4.9	--	<4.9
Ethene	µg/L	<0.68	--	<0.68	--	<0.68
Methane	µg/L	<1.9 J	--	<1.6 J	--	<2.2 J
Metals						
Chromium VI (hexavalent)	mg/L	--	--	--	--	--
Aluminum (dissolved)	µg/L	<13.5	--	<8.6	--	<8.6
Antimony (dissolved)	µg/L	<2.5	--	<3.1	--	<3.1
Arsenic (dissolved)	µg/L	<2.5	--	<5.2	--	<5.2
Barium (dissolved)	µg/L	17.1	--	25.2	--	67.3
Beryllium (dissolved)	µg/L	<0.064	--	<0.11	--	<0.11
Cadmium (dissolved)	µg/L	<0.30	--	<0.46	--	<0.46
Calcium (dissolved)	µg/L	43900	--	60600	--	22200
Chromium (dissolved)	µg/L	3.7 J	--	0.87 J	--	<0.50
Cobalt (dissolved)	µg/L	0.79 J	--	<1.1	--	<1.1
Copper (dissolved)	µg/L	1.4 J	--	0.91 J	--	<0.83
Iron (dissolved)	µg/L	42.8 J	--	<16.7	--	<16.7
Lead (dissolved)	µg/L	<1.9	--	<3.0	--	<3.0
Magnesium (dissolved)	µg/L	17200	--	21600	--	19500
Manganese (dissolved)	µg/L	19.0	--	33.0	--	52.8

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

	Location ID:	MW-19D	MW-20D	MW-20D	MW-21D	MW-21D
	Sample Name:	MW19D-GW-061517	MW20D-GW-depth-061517	MW20D-GW-070717	MW21D-GW-20-070517	MW21D-GW-071117
	Sample Date:	06/15/2017	06/15/2017	07/07/2017	07/05/2017	07/11/2017
	Depth:	167 ft bgs	94.5-97.5 ft bgs	140 ft bgs	20 ft bgs	120 ft bgs
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.062	--	0.070 J	--	<0.062
Nickel (dissolved)	µg/L	3.7 J	--	<1.1	--	<1.1
Potassium (dissolved)	µg/L	3790	--	3490	--	4370
Selenium (dissolved)	µg/L	<4.5	--	<6.4	--	<6.4
Silver (dissolved)	µg/L	<0.28	--	<0.27	--	<0.27
Sodium (dissolved)	µg/L	15500	--	24900	--	31000
Thallium (dissolved)	µg/L	4.7 J	--	<4.8	--	<4.8
Vanadium (dissolved)	µg/L	5.0 J	--	6.5 J	--	3.5 J
Zinc (dissolved)	µg/L	16.0 J	--	<1.8	--	2.3 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	172	--	266	--	183
Chemical oxygen demand (COD)	mg/L	<15.8	--	<15.8	--	17.4 J
Chloride	mg/L	7.7	--	7.1	--	4.3
Nitrate (as N)	mg/L	4.3 J	--	1.1 J	--	0.092 J
Nitrite/Nitrate	mg/L	4.1 J	--	1.2	--	0.12
Sulfate	mg/L	21.8	--	10.3	--	15.7
Sulfide	mg/L	<0.0050 J	--	<0.0050	--	0.0058 J
Total dissolved solids (TDS)	mg/L	283	--	331	--	254
Total organic carbon (TOC)	mg/L	0.88 J	--	1.6	--	2.2

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

	Location ID:	Randall Influent	Randall Influent	Reed Well (W30)	Silva Well	Stark Well (W15)	Stark Well (W15)
	Sample Name:	Randall-Inf-GW-053117	FD01-GW-053117	Reed-GW-062017	Silva-GW-060117	Stark-GW-060117	FD02-GW-060117
	Sample Date:	05/31/2017	05/31/2017	06/20/2017	06/01/2017	06/01/2017	06/01/2017
	Depth:	70 ft bgs	70 ft bgs Duplicate	119.5 ft bgs	100 ft bgs	104 ft bgs	104 ft bgs Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057
1,1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	12.7 J	11.4 J	<0.64	35.2
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Location ID: Sample Name: Sample Date: Depth:	Randall Influent Randall-Inf-GW-053117 05/31/2017 70 ft bgs	Randall Influent FD01-GW-053117 05/31/2017 70 ft bgs Duplicate	Reed Well (W30) Reed-GW-062017 06/20/2017 119.5 ft bgs	Silva Well Silva-GW-060117 06/01/2017 100 ft bgs	Stark Well (W15) Stark-GW-060117 06/01/2017 104 ft bgs	Stark Well (W15) FD02-GW-060117 06/01/2017 104 ft bgs Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	1.6	2.4	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	268	272	<0.079	<0.079	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	13.4	13.4	<0.21	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051	<0.051

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID: Sample Name: Sample Date: Depth:	Randall Influent Randall-Inf-GW-053117 05/31/2017 70 ft bgs	Randall Influent FD01-GW-053117 05/31/2017 70 ft bgs Duplicate	Reed Well (W30) Reed-GW-062017 06/20/2017 119.5 ft bgs	Silva Well Silva-GW-060117 06/01/2017 100 ft bgs	Stark Well (W15) Stark-GW-060117 06/01/2017 104 ft bgs	Stark Well (W15) FD02-GW-060117 06/01/2017 104 ft bgs Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	1.6	1.6	<0.059	<0.059	0.065 J
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055
Trifluorotrichloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.6 J	<1.6 J	<2.0 J	<1.6 J	<1.5 J
Metals						
Chromium VI (hexavalent)	mg/L	--	--	--	--	--
Aluminum (dissolved)	µg/L	<13.5	<13.5	<13.5	<13.5	<13.5
Antimony (dissolved)	µg/L	2.7 J	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	24.0	24.0	45.0	<0.20	36.8
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	44100	44700	26400	51.4 J	34800
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.67 J	<0.51	0.83 J	<0.51	<0.51
Copper (dissolved)	µg/L	9.0 J	9.2 J	3.0 J	93.6	317
Iron (dissolved)	µg/L	147	150	<18.0	<18.0	<18.0
Lead (dissolved)	µg/L	2.1 J	2.6 J	<1.9	5.6 J	2.7 J
Magnesium (dissolved)	µg/L	14200	14100	10400	214 J	12200
Manganese (dissolved)	µg/L	9.4	9.0	0.96 J	1.2 J	0.50 J

Table 3

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID: Sample Name: Sample Date: Depth:	Randall Influent Randall-Inf-GW-053117 05/31/2017 70 ft bgs	Randall Influent FD01-GW-053117 05/31/2017 70 ft bgs Duplicate	Reed Well (W30) Reed-GW-062017 06/20/2017 119.5 ft bgs	Silva Well Silva-GW-060117 06/01/2017 100 ft bgs	Stark Well (W15) Stark-GW-060117 06/01/2017 104 ft bgs	Stark Well (W15) FD02-GW-060117 06/01/2017 104 ft bgs Duplicate
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	1360 J	1370 J	3090	<26.1	1770 J
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	14000	13900	13200	83600	18100
Thallium (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	5.0 J
Vanadium (dissolved)	µg/L	4.7 J	5.0 J	24.0	1.0 J	6.3 J
Zinc (dissolved)	µg/L	222	233	37.3	114	189
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	175	177	144	152	106
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	--
Chloride	mg/L	5.7	5.7	1.4	19.3	1.4
Nitrate (as N)	mg/L	2.4 J	2.4 J	0.24 J	0.23 J	17.0 J
Nitrite/Nitrate	mg/L	2.6	2.6	0.26	--	--
Sulfate	mg/L	8.5	8.5	6.6	5.6 J	11.1 J
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 J
Total dissolved solids (TDS)	mg/L	249	261	204	263	299
Total organic carbon (TOC)	mg/L	0.42 J	0.32 J	1.5	0.43 J	0.34 J

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
	Sample Name:	Thorson-GW-062617	W20-GW-061417	W26-GW-061517	WS5-Inf-GW-061417	WS5-Eff-GW-061417
	Sample Date:	06/26/2017	06/14/2017	06/15/2017	06/14/2017	06/14/2017
	Depth:	160 ft bgs	82 ft bgs	92 ft bgs	133.5 ft bgs	--
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064 J	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057 J	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055 J	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064 J	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055 J	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069 J	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082 J	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17 J	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19 J	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068 J	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60 J	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092 J	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078 J	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072 J	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16 J	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066 J	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042 J	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085 J	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059 J	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081 J	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8 J	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087 J	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096 J	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1 J	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084 J	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19 J	<0.19	<0.19	<0.19
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094 J	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048 J	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80 J	<0.80	<0.80	<0.80
Acetone	µg/L	14.0 J	5.4 J	<0.64	<0.64	<0.64
Acrolein	µg/L	<2.1	<2.1 J	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49 J	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042 J	<0.042	<0.042	<0.042

Table 3

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
	Sample Name:	Thorson-GW-062617	W20-GW-061417	W26-GW-061517	WS5-Inf-GW-061417	WS5-Eff-GW-061417
	Sample Date:	06/26/2017	06/14/2017	06/15/2017	06/14/2017	06/14/2017
	Depth:	160 ft bgs	82 ft bgs	92 ft bgs	133.5 ft bgs	--
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Bromobenzene	µg/L	<0.087	<0.087 J	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068 J	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11 J	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20 J	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20 J	0.26 J	<0.20	<0.20
Carbon tetrachloride	µg/L	<0.079	<0.079 J	34.6	4.5	<0.079
Chlorobenzene	µg/L	<0.066	<0.066 J	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082 J	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21 J	2.5	0.33 J	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080 J	<0.080	2.8 J	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069 J	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064 J	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048 J	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075 J	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054 J	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050 J	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075 J	<0.075	<0.075	<0.075
Hexachlorobutadiene	µg/L	<0.13	<0.13 J	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064 J	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11 J	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047 J	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097 J	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16 J	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049 J	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064 J	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044 J	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056 J	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073 J	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89 J	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062 J	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051 J	<0.051	<0.051	<0.051

Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
	Sample Name:	Thorson-GW-062617	W20-GW-061417	W26-GW-061517	WS5-Inf-GW-061417	WS5-Eff-GW-061417
	Sample Date:	06/26/2017	06/14/2017	06/15/2017	06/14/2017	06/14/2017
	Depth:	160 ft bgs	82 ft bgs	92 ft bgs	133.5 ft bgs	--
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Tetrachloroethene	µg/L	<0.13	<0.13 J	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5 J	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059 J	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15 J	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044 J	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45 J	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044 J	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055 J	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13 J	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098 J	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15 J	<0.15	<0.15	<0.15
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	--
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	--
Methane	µg/L	<1.7 J	13.8	<1.4 J	<1.7 J	--
Metals						
Chromium VI (hexavalent)	mg/L	<0.0033 J	--	--	--	--
Aluminum (dissolved)	µg/L	<8.6	<13.5	<13.5	<13.5	--
Antimony (dissolved)	µg/L	<3.1	<2.5	<2.5	<2.5	--
Arsenic (dissolved)	µg/L	<5.2	<2.5	<2.5	<2.5	--
Barium (dissolved)	µg/L	79.9	17.6	6.6 J	51.6	--
Beryllium (dissolved)	µg/L	<0.11	<0.064	<0.064	<0.064	--
Cadmium (dissolved)	µg/L	<0.46	<0.30	<0.30	<0.30	--
Calcium (dissolved)	µg/L	23700	39900	37700	32600	--
Chromium (dissolved)	µg/L	<0.50	<2.0	5.2 J	<2.0	--
Cobalt (dissolved)	µg/L	<1.1	<0.51	0.72 J	<0.51	--
Copper (dissolved)	µg/L	4.5 J	<0.89	<0.89	1.8 J	--
Iron (dissolved)	µg/L	98.8	675	60.6	<18.0	--
Lead (dissolved)	µg/L	<3.0	<1.9	<1.9	<1.9	--
Magnesium (dissolved)	µg/L	12100	13600	11000	14500	--
Manganese (dissolved)	µg/L	27.2	27.7	1.2 J	<0.33	--

**Analytical Results Summary
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
Sample Name:	Thorson-GW-062617	W20-GW-061417	W26-GW-061517	WS5-Inf-GW-061417	WS5-Eff-GW-061417
Sample Date:	06/26/2017	06/14/2017	06/15/2017	06/14/2017	06/14/2017
Depth:	160 ft bgs	82 ft bgs	92 ft bgs	133.5 ft bgs	--
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	--
Nickel (dissolved)	µg/L	<1.1	<1.6	4.7 J	<1.6
Potassium (dissolved)	µg/L	3850	2170 J	2190 J	4880
Selenium (dissolved)	µg/L	<6.4	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.27	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	14700	10600	12500	14300
Thallium (dissolved)	µg/L	<4.8	<3.8	4.4 J	<3.8
Vanadium (dissolved)	µg/L	<0.42	8.0 J	7.3 J	19.8
Zinc (dissolved)	µg/L	11.2 J	4.7 J	113	8.3 J
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	146	154	140	179
Chemical oxygen demand (COD)	mg/L	<15.8	34.6 J	<15.8	<15.8
Chloride	mg/L	1.2	2.2	4.9	2.6
Nitrate (as N)	mg/L	<0.013	4.4 J	2.7 J	1.0 J
Nitrite/Nitrate	mg/L	<0.0075	4.4	2.6 J	1.2
Sulfate	mg/L	3.2	11.9	11.2	5.4
Sulfide	mg/L	<0.0050	0.22 J	<0.0050 J	<0.0050 J
Total dissolved solids (TDS)	mg/L	185	245	239	228
Total organic carbon (TOC)	mg/L	<0.20	0.73 J	0.66 J	0.36 J

Notes:

- "--" - Not analyzed
- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Holding Time	Holding Time Criteria	Analyte	Qualified Sample Results	Units
General Chemistry	Randall-Inf-GW-053117	50 hours	48 hours	Nitrate (as N)	2.4 J	mg/L
	Marlow-Inf-GW-053117	49 hours	48 hours	Nitrate (as N)	3.9 J	mg/L
	FD01-GW-053117	55 hours	48 hours	Nitrate (as N)	2.4 J	mg/L
	Stark-GW-060117	59 hours	48 hours	Nitrate (as N)	17.0 J	mg/L
	Silva-GW-060117	55 hours	48 hours	Nitrate (as N)	0.23 J	mg/L
	FD02-GW-060117	65 hours	48 hours	Nitrate (as N)	17.1 J	mg/L
	MW12S-GW-053117	9 days	48 hours	Nitrate (as N)	5.9 J	mg/L
	MW11S-GW-053117	9 days	48 hours	Nitrate (as N)	0.047 J	mg/L
	MW10S-GW-053117	9 days	48 hours	Nitrate (as N)	0.33 J	mg/L
	MW13S-GW-053117	9 days	48 hours	Nitrate (as N)	0.20 J	mg/L
	MW7S-GW-053117	9 days	48 hours	Nitrate (as N)	7.8 J	mg/L
	ASHER-GW-060517	8 days	48 hours	Nitrate (as N)	8.1 J	mg/L
	LANG-GW-060617	59 hours	48 hours	Nitrate (as N)	0.46 J	mg/L
	LASHAW-DOM-GW-060617	61 hours	48 hours	Nitrate (as N)	2.1 J	mg/L
	LASHAW-AG-GW-060617	57 hours	48 hours	Nitrate (as N)	0.14 J	mg/L
	MW16D-GW-060717	85 hours	48 hours	Nitrate (as N)	6.0 J	mg/L
	MW18D-GW-060717	82 hours	48 hours	Nitrate (as N)	0.037 J	mg/L
	FD03-GW-060717	89 hours	48 hours	Nitrate (as N)	6.0 J	mg/L
	MW02D-GW-060817	63 hours	48 hours	Nitrate (as N)	0.042 J	mg/L
	MW01D-GW-060817	61 hours	48 hours	Nitrate (as N)	<0.013 J	mg/L
	MW05D-GW-060917	85 hours	48 hours	Nitrate (as N)	0.53 J	mg/L
	MW03D-GW-060917	4 days	48 hours	Nitrate (as N)	0.14 J	mg/L
	MW14D-GW-060917	4 days	48 hours	Nitrate (as N)	0.050 J	mg/L
	MW04D-GW-060917	5 days	48 hours	Nitrate (as N)	1.5 J	mg/L
	WS5-Inf-GW-061417	85 hours	48 hours	Nitrate (as N)	1.0 J	mg/L
	MW17D-GW-061417	81 hours	48 hours	Nitrate (as N)	<0.013 J	mg/L
	W20-GW-061417	78 hours	48 hours	Nitrate (as N)	4.4 J	mg/L
	MW06D-GW-061517	62 hours	48 hours	Nitrate (as N)	0.69 J	mg/L
	MW19D-GW-061517	60 hours	48 hours	Nitrate (as N)	4.3 J	mg/L
	W26-GW-061517	58 hours	48 hours	Nitrate (as N)	2.7 J	mg/L
	Reed-GW-062017	49 hours	48 hours	Nitrate (as N)	0.24 J	mg/L
	MW15D-GW-070717	4 days	48 hours	Nitrate (as N)	1.8 J	mg/L
	MW20D-GW-070717	4 days	48 hours	Nitrate (as N)	1.1 J	mg/L
	MW9D-GW-062617	25 hours	24 hours	Chromium VI (hexavalent)	<0.0086 J	mg/L

Notes:

J - Estimated concentration

<()J - Not detected; associated reporting limit is estimated

Table 5

**Qualified Sample Data Due to Headspace
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	W20-GW-061417	1,1,1,2-Tetrachloroethane	<0.064 J	µg/L
		1,1,1-Trichloroethane	<0.057 J	µg/L
		1,1,2,2-Tetrachloroethane	<0.055 J	µg/L
		1,1,2-Trichloroethane	<0.064 J	µg/L
		1,1-Dichloroethane	<0.055 J	µg/L
		1,1-Dichloroethene	<0.069 J	µg/L
		1,1-Dichloropropene	<0.082 J	µg/L
		1,2,3-Trichlorobenzene	<0.17 J	µg/L
		1,2,3-Trichloropropane	<0.19 J	µg/L
		1,2,4-Trichlorobenzene	<0.14 J	µg/L
		1,2,4-Trimethylbenzene	<0.068 J	µg/L
		1,2-Dibromo-3-chloropropane (DBCP)	<0.60 J	µg/L
		1,2-Dibromoethane (Ethylene dibromide)	<0.092 J	µg/L
		1,2-Dichlorobenzene	<0.078 J	µg/L
		1,2-Dichloroethane	<0.072 J	µg/L
		1,2-Dichloroethene (total)	<0.16 J	µg/L
		1,2-Dichloropropane	<0.066 J	µg/L
		1,3,5-Trimethylbenzene	<0.042 J	µg/L
		1,3-Dichlorobenzene	<0.085 J	µg/L
		1,3-Dichloropropane	<0.059 J	µg/L
		1,4-Dichlorobenzene	<0.081 J	µg/L
		1,4-Dioxane	<4.8 J	µg/L
		2,2,4-Trimethylpentane	<0.087 J	µg/L
		2,2-Dichloropropane	<0.096 J	µg/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<1.1 J	µg/L
		2-Chlorotoluene	<0.084 J	µg/L
		2-Hexanone	<0.19 J	µg/L
		2-Phenylbutane (sec-Butylbenzene)	<0.094 J	µg/L
		4-Chlorotoluene	<0.048 J	µg/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.80 J	µg/L
		Acetone	5.4 J	µg/L
		Acrolein	<2.1 J	µg/L
Acrylonitrile	<0.49 J	µg/L		
Benzene	<0.042 J	µg/L		
Bromobenzene	<0.087 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	W20-GW-061417	Bromodichloromethane	<0.068 J	µg/L
		Bromoform	<0.11 J	µg/L
		Bromomethane (Methyl bromide)	<0.20 J	µg/L
		Carbon disulfide	<0.20 J	µg/L
		Carbon tetrachloride	<0.079 J	µg/L
		Chlorobenzene	<0.066 J	µg/L
		Chlorobromomethane	<0.082 J	µg/L
		Chloroethane	<0.12 J	µg/L
		Chloroform (Trichloromethane)	<0.21 J	µg/L
		Chloromethane (Methyl chloride)	<0.080 J	µg/L
		cis-1,2-Dichloroethene	<0.12 J	µg/L
		cis-1,3-Dichloropropene	<0.069 J	µg/L
		Cymene (p-Isopropyltoluene)	,0.064 J	µg/L
		Dibromochloromethane	<0.048 J	µg/L
		Dibromomethane	<0.14 J	µg/L
		Dichlorodifluoromethane (CFC-12)	<0.075 J	µg/L
		Dichlorofluoromethane	<0.054 J	µg/L
		Diisopropyl ether	<0.050 J	µg/L
		Ethylbenzene	<0.075 J	µg/L
		Hexachlorobutadiene	<0.13 J	µg/L
		Isopropyl benzene	<0.064 J	µg/L
		m&p-Xylenes	<0.11 J	µg/L
		Methyl tert butyl ether (MTBE)	<0.047 J	µg/L
		Methylene chloride	<0.097 J	µg/L
		N-Butylbenzene	<0.16 J	µg/L
		N-Propylbenzene	<0.049 J	µg/L
		Naphthalene	<0.064 J	µg/L
		o-Xylene	<0.044 J	µg/L
		Styrene	<0.056 J	µg/L
		tert-Amyl methyl ether	<0.073 J	µg/L
		tert-Butyl alcohol	<0.89 J	µg/L
		tert-Butyl ethyl ether	<0.062 J	µg/L
		tert-Butylbenzene	<0.051 J	µg/L
		Tetrachloroethene	<0.13 J	µg/L
		Tetrahydrofuran	<1.5 J	µg/L

Table 5

**Qualified Sample Data Due to Headspace
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	W20-GW-061417	Toluene	<0.059 J	µg/L
		trans-1,2-Dichloroethene	<0.15 J	µg/L
		trans-1,3-Dichloropropene	<0.044 J	µg/L
		trans-1,4-Dichloro-2-butene	<0.45 J	µg/L
		Trichloroethene	<0.044 J	µg/L
		Trichlorofluoromethane (CFC-11)	<0.055 J	µg/L
		Trifluorotrchloroethane (CFC-113)	<0.13 J	µg/L
		Vinyl acetate	<0.12 J	µg/L
		Vinyl chloride	<0.098 J	µg/L
		Xylenes (total)	<0.15 J	µg/L

Notes:

- J - Estimated concentration
- <()J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases	Methane	06/05/2017	1.5 J	Randall-Inf-GW-053117	1.6 J	<1.6 J	µg/L
				Marlow-Inf-GW-053117	1.5 J	<1.5 J	µg/L
				FD01-GW-053117	1.6 J	<1.6 J	µg/L
				Stark-GW-060117	1.5 J	<1.5 J	µg/L
				Silva-GW-060117	1.6 J	<1.6 J	µg/L
				FD02-GW-060117	1.5 J	<1.5 J	µg/L
		06/07/2017	1.5 J	MW8S-GW-060217	2.0 J	<2.0 J	µg/L
				MW6S-GW-060217	2.0 J	<2.0 J	µg/L
				MW1S-GW-060217	1.7 J	<1.7 J	µg/L
				MW11S-GW-053117	2.6 J	<2.6 J	µg/L
				MW13S-GW-053117	2.6 J	<2.6 J	µg/L
				MW7S-GW-053117	1.6 J	<1.6 J	µg/L
				MW9S-GW-060217	1.5 J	<1.5 J	µg/L
		06/08/2017	1.4 J	ASHER-GW-060517	1.9 J	<1.9 J	µg/L
				LANG-GW-060617	6.2 J	<6.2 J	µg/L
				LASHAW-DOM-GW-060617	1.4 J	<1.4 J	µg/L
				LASHAW-AG-GW-060617	2.2 J	<2.2 J	µg/L
		06/12/2017	1.6 J	MW16D-GW-060717	1.8 J	<1.8 J	µg/L
				MW18D-GW-060717	2.2 J	<2.2 J	µg/L
				FD03-GW-060717	1.6 J	<1.6 J	µg/L

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases	Methane	06/14/2017	1.6 J	MW05D-GW-060917	1.8 J	<1.8 J	µg/L
				MW03D-GW-060917	2.6 J	<2.6 J	µg/L
				MW14D-GW-060917	2.1 J	<2.1 J	µg/L
				MW04D-GW-060917	1.9 J	<1.9 J	µg/L
		06/19/2017	1.6 J	WS5-Inf-GW-061417	1.7 J	<1.7 J	µg/L
				06/20/2017	1.5 J	MW17D-GW-061417	1.7 J
		MW06D-GW-061517	2.2 J			<2.2 J	µg/L
		MW19D-GW-061517	1.9 J			<1.9 J	µg/L
		W26-GW-061517	1.4 J			<1.4 J	µg/L
		06/27/2017	1.6 J	Reed-GW-062017	2.0 J	<2.0 J	µg/L
		06/28/2017	1.6 J	MW9D-GW-062617	1.5 J	<1.5 J	µg/L
				Thorson-GW-062617	1.7 J	<1.7 J	µg/L
				Marlow #2-GW-062617	2.2 J	<2.2 J	µg/L
		07/13/2017	1.7 J	MW15D-GW-070717	1.9 J	<1.9 J	µg/L
				MW20D-GW-070717	1.6 J	<1.6 J	µg/L
				MW21D-GW-071117	2.2 J	<2.2 J	µg/L

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Potassium (dissolved)	6/16/2017	71.3 J	ASHER-GW-060517	1310 J	<1310 J	µg/L
				LANG-GW-060617	1320 J	<1320 J	µg/L
				MW16D-GW-060717	1480 J	<1480 J	µg/L
				FD03-GW-060717	1550 J	<1550 J	µg/L
General Chemistry	Chromium VI (hexavalent)	6/27/2017	0.0042 J	MW9D-GW-062617	0.0086 J	<0.0086 J	mg/L
				Thorson-GW-062617	0.0033 J	<0.0033 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <()J - Not detected; associated reporting limit is estimated

Table 7

**Qualified Sample Results Due to Outlying LCS/LCSD Results
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	Acetone	06/14/2017	129	--	--	66-126	--	Silva-GW-060117	11.4 J	µg/L
		06/15/2017	142	137	4	66-126	30	MW16D-GW-060717 MW18D-GW-060717	9.5 J 50.4 J	µg/L µg/L
		06/22/2017	144	--	--	66-126	--	MW05D-GW-060917 MW03D-GW-060917	8.8 J 2.9 J	µg/L µg/L
		06/26/2017	144	126	13	66-126	30	MW06D-GW-061517	13.0 J	µg/L
		06/27/2017	133	123	8	66-126	30	Reed-GW-062017	12.7 J	µg/L
		06/30/2017	135	114	17	66-126	30	MW15D-GW-20-062617	9.2 J	µg/L
		06/30/2017	169	152	10	66-126	30	Marlow #2-GW-062617 Thorson-GW-062617	28.0 J 14.0 J	µg/L µg/L
		07/14/2017	122	87	34	66-126	30	MW21D-GW-071117	18.4 J	µg/L

Notes:

- LCS - Laboratory Control Sample
- LCSD - Laboratory Control Sample Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- VOCs - Volatile Organic Compounds

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	WS5-Inf-GW-061417	Sulfide	53	--	--	75-125	--	WS5-Inf-GW-061417	<0.0050 J	mg/L
								MW17D-GW-061417	0.95 J	mg/L
								W20-GW-061417	0.22 J	mg/L
								MW06D-GW-061517	<0.0050 J	mg/L
								MW19D-GW-061517	<0.0050 J	mg/L
								W26-GW-061517	<0.0050 J	mg/L
	Stark-GW-060117	Sulfide	37	--	--	75-125	--	Stark-GW-060117	<0.0050 J	mg/L
	Randall-Inf-GW-053117	Nitrate (as N)	78	83	2	90-110	20	Randall-Inf-GW-053117	2.4 J	mg/L
								Marlow-Inf-GW-053117	3.9 J	mg/L
								FD01-GW-053117	2.4 J	mg/L
	Stark-GW-060117	Nitrate (as N)	73	72	0	90-110	20	MW8S-GW-060217	7.7 J	mg/L
								MW6S-GW-060217	0.098 J	mg/L
								MW1S-GW-060217	0.055 J	mg/L
								MW9S-GW-060217	35.4 J	mg/L
Stark-GW-060117								17.0 J	mg/L	
Silva-GW-060117								0.23 J	mg/L	
FD02-GW-060117								17.1 J	mg/L	
Sulfate	80	80	0	90-110	20	MW8S-GW-060217	19.6 J	mg/L		
						MW6S-GW-060217	1.6 J	mg/L		
						MW1S-GW-060217	14.9 J	mg/L		

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units						
						% Recovery	RPD									
General Chemistry	Stark-GW-060117	Sulfate	80	80	0	90-110	20	MW9S-GW-060217	79.1 J	mg/L						
								Stark-GW-060117	11.1 J	mg/L						
								Silva-GW-060117	5.6 J	mg/L						
								FD02-GW-060117	11.1 J	mg/L						
	MW16D-GW-060717	Chloride	88	88	0	90-110	20	MW16D-GW-060717	7.3 J	mg/L						
								MW18D-GW-060717	3.0 J	mg/L						
								FD03-GW-060717	7.3 J	mg/L						
								MW02D-GW-060817	1.6 J	mg/L						
								MW01D-GW-060817	1.9 J	mg/L						
								Sulfate	70	71	0	90-110	20	MW16D-GW-060717	23.4 J	mg/L
														MW18D-GW-060717	8.3 J	mg/L
														FD03-GW-060717	23.5 J	mg/L
	MW02D-GW-060817	0.43 J	mg/L													
	MW05D-GW-060917	Nitrate (as N)	88	87	1	90-110	20	MW05D-GW-060917	0.53 J	mg/L						
								MW03D-GW-060917	0.14 J	mg/L						
								MW14D-GW-060917	0.050 J	mg/L						
MW04D-GW-060917								1.5 J	mg/L							
Sulfate	89	88	1	90-110	20	MW05D-GW-060917	5.4 J	mg/L								
						MW03D-GW-060917	2.8 J	mg/L								

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery		% Recovery	RPD				
General Chemistry	MW05D-GW-060917	Sulfate	89	88	1	90-110	20	MW14D-GW-060917 MW04D-GW-060917	17.6 J 16.7 J	mg/L mg/L	
	WS5-Inf-GW-061417		Nitrate (as N)	85	85	0	90-110	20	WS5-Inf-GW-061417 MW17D-GW-061417 W20-GW-061417 MW06D-GW-061517 MW19D-GW-061517 W26-GW-061517	1.0 J <0.013 J 4.4 J 0.69 J 4.3 J 2.7 J	mg/L mg/L mg/L mg/L mg/L mg/L
MW19D-GW-061517	Nitrite/Nitrate	89		89	0	70-110	20	MW06D-GW-061517 MW19D-GW-061517 W26-GW-061517	0.72 J 4.1 J 2.6 J	mg/L mg/L mg/L	
Marlow #2-GW-062617		Chromium VI (hexavalent)		77	74	4	85-115	20	MW9D-GW-062617 Thorson-GW-062617 Marlow #2-GW-062617	<0.0086 J <0.0033 J <0.0021 J	mg/L mg/L mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <()J - Not detected; associated reporting limit is estimated

Table 9

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May - July 2017

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	05/31/17	Toluene	0.061 J	MW12S-GW-053117	0.21 J	<0.21 J	µg/L
				MW11S-GW-053117	0.098 J	<0.098 J	µg/L
				MW13S-GW-053117	0.10 J	<0.10 J	µg/L
	06/02/17	Acetone	4.6 J	MW8S-GW-060217	5.5 J	<5.5 J	µg/L
		Methylene chloride	0.29 J	MW8S-GW-060217	0.94 J	<0.94 J	µg/L
				MW9S-GW-060217	3.3 J	<3.3 J	µg/L
	06/06/17	Acetone	7.8 J	LANG-GW-060617	14.4 J	<14.4 J	µg/L
		Methylene chloride	0.44 J	LANG-GW-060617	0.63 J	0.63 J	µg/L
				Acetone	47.0	LASHAW-DOM-GW-060617	32.3
				LASHAW-AG-GW-060617	20.2	<20.2	µg/L
	06/15/17	Acetone	7.2 J	MW20D-GW-depth-061517	7.7 J	<7.7 J	µg/L
	07/07/17	Acetone	5.8 J	MW15D-GW-070717	5.7 J	<5.7 J	µg/L
				MW20D-GW-070717	4.6 J	<4.6 J	µg/L

Notes:


- < - Not detected at the associated reporting limit
- J - Estimated concentration
- <()J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

December 19, 2017

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/386-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

Subject: Analytical Results and Reduced Validation of Reports 10403555, 10403556, 10403559, 10403560, 10403561, 10403562, 10403563, 10403564, 10403565, 10403566, 10404160, 10404191, 10404887, 10405436, 10405930, 10405934, 10406354, 10406438, 10406825, 10406829, 10407193, 10407351, 10407572 and 10407574
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
September – October 2017

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during September and October 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS) and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of several samples for nitrate analysis. Where the holding times were exceeded the associated sample results were qualified as non-detect. Where the holding times were exceeded by more than two times the associated sample detections were qualified as estimated and the associated non-detect results were rejected. A summary of the qualifications and exceptions is presented in Table 4.

All sample containers were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

The volatile organic compound (VOC) analysis for several samples was performed on containers with significant headspace (>6mm). The associated sample results were qualified as estimated due to the implied low bias (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 6).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.



5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of a few high recoveries. The associated non-detect results were not impacted and the associated sample detections were qualified as estimated due to the implied high bias (see Table 7).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 8).



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

Organic Analyses

The MS samples were spiked with the analytes of interest. All percent recoveries were within the associated control limits, demonstrating acceptable analytical accuracy.

Inorganic Analyses

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias. Where an extremely low recovery was found the associated sample detections were qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated. A summary of the qualifications and exceptions is presented in Table 8.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1.

Organic Analyses

The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

Inorganic Analyses

The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of 10 trip blank samples and three field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, 10 trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest



with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 9).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments		
						Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs			
Asher-GW-091217	Asher Well	Water	90	09/12/2017	15:20	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lang-GW-091217	Lang Well	Water	225	09/12/2017	11:00	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lashaw-AG-GW-091217	Lashaw Well (Agricultural)	Water	--	09/12/2017	12:18	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Lashaw-DOM-GW-091217	Lashaw Well (Domestic)	Water	225	09/12/2017	11:40	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
Marlow-GW-091917	Marlow Well	Water	82	09/19/2017	13:10	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
FD02-GW-091917	Marlow Well	Water	82	09/19/2017	--	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (Marlow-GW-091917)
Marlow2-GW-101617	Out-of-Use Marlow Well (No. 2)	Water	80	10/16/2017	10:55	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW1D-GW-101017	MW-1D	Water	93	10/10/2017	12:30	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW1S-GW-101217	MW-1S	Water	20	10/12/2017	14:10	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS
MW2D-GW-091417	MW-2D	Water	140	09/14/2017	09:30	X	X	X	X	X	X	X	X	X	X	X	X	X	MS - MS/MSD
MW3D-GW-091417	MW-3D	Water	173	09/14/2017	14:50	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW4D-GW-100517	MW-4D	Water	185	10/05/2017	11:25	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW5D-GW-101017	MW-5D	Water	145	10/10/2017	09:25		X	X	X			X	X	X	X	X	X	X	
MW6D-GW-100517	MW-6D	Water	222	10/05/2017	09:35	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW6S-GW-101217	MW-6S	Water	40	10/12/2017	10:55	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW6U-GW-101217	MW-6U	Water	55	10/12/2017	11:20	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW7S-GW-101017	MW-7S	Water	43.5	10/10/2017	14:05	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW8S-GW-101217	MW-8S	Water	49.5	10/12/2017	13:20	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW9D-GW-100517	MW-9D	Water	90	10/05/2017	12:40	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP
MW9S-GW-101217	MW-9S	Water	38.5	10/12/2017	13:40	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW9U-GW-101217	MW-9U	Water	66	10/12/2017	09:00	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW10S-GW-101217	MW-10S	Water	71	10/12/2017	12:15	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP
MW11S-GW-101217	MW-11S	Water	72.5	10/12/2017	11:50	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP
MW12S-GW-101217	MW-12S	Water	51	10/12/2017	09:35	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW13S-GW-101217	MW-13S	Water	26	10/12/2017	10:20	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW14D-GW-091417	MW-14D	Water	127	09/14/2017	13:05	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments		
						Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs			
MW15D-GW-100217	MW-15D	Water	126	10/02/2017	14:30	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW16D-GW-100217	MW-16D	Water	97.5	10/02/2017	12:05	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW17D-GW-101017	MW-17D	Water	214	10/10/2017	13:40	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW18D-GW-100217	MW-18D	Water	154	10/02/2017	13:40	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW19D-GW-100517	MW-19D	Water	165	10/05/2017	13:55	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP
FD-GW-100517	MW-19D	Water	165	10/05/2017	--	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (MW19D-GW-100517)
MW20D-GW-100517	MW-20D	Water	140	10/05/2017	15:10	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW21D-GW-100217	MW-21D	Water	120	10/02/2017	11:10	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Randall-GW-091917	Randall Well	Water	71	09/19/2017	10:26	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD01-GW-091917	Randall Well	Water	71	09/19/2017	--	X	X	X	X	X	X	X	X	X	X	X	X	X	FD (Randall-GW-091917)
Reed-GW-091317	Reed Well (W30)	Water	119.5	09/13/2017	10:30	X	X	X	X	X	X	X	X	X	X	X	X	X	
Silva-GW-091217	Silva Well	Water	100	09/12/2017	13:35	X	X	X	X	X	X	X	X	X	X	X	X	X	
Silva-GW-092517	Silva Well	Water	100	09/25/2017	11:40														X
Silva-GW-092917	Silva Well	Water	100	09/29/2017	09:40														X
Stark-GW-091217	Stark Well (W15)	Water	104	09/12/2017	14:54	X	X	X	X	X	X	X	X	X	X	X	X	X	
Thorson-GW-091207	Thorson Well	Water	160	09/12/2017	14:20	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
W20-GW-101617	Out-of-Use Marlow Well (W20)	Water	140	10/16/2017	13:20	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
W26-GW-101617	Out-of-Use Freeman School Well (W26)	Water	92	10/16/2017	15:20	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
WS5-GW-101117	WS-5	Water	133.5	10/11/2017	08:10	X	X	X	X	X	X	X	X	X	X	X	X	X	
TB-091217	--	Water	--	09/12/2017	--														X
TB-091217	--	Water	--	09/12/2017	--														X
TB-091917	--	Water	--	09/19/2017	--														X
Trip Blank	--	Water	--	09/25/2017	--														X
Trip Blank	--	Water	--	09/29/2017	--														X
Trip Blank	--	Water	--	10/02/2017	--														X
Trip Blank	--	Water	--	10/05/2017	--														X

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments			
						Anions	Nitrate+Nitrite	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs				
Trip Blank	--	Water	--	10/10/2017	--													X	Trip Blank	
Trip Blank	--	Water	--	10/12/2017	--														X	Trip Blank
Trip Blank	--	Water	--	10/16/2017	--														X	Trip Blank

Notes:

ft. bgs.	- Feet below ground surface
DUP	- Laboratory Duplicate
FD	- Field Duplicate sample of sample in parenthesis
MS	- Matrix Spike
MS/MSD	- Matrix Spike/Matrix Spike Duplicate
VOCs	- Volatile Organic Compounds
COD	- Chemical Oxygen Demand
TDS	- Total Dissolved Solids
TOC	- Total Organic Carbon
"--"	- Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010C ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾	Water
Nitrate+Nitrite	EPA 353.2 ⁽⁴⁾	Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S-2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

	Location ID: Sample Name: Sample Date: Depth:	Asher Well Asher-GW-091217 09/12/2017 90 ft bgs	Lang Well Lang-GW-091217 09/12/2017 225 ft bgs	Lashaw Well (Agricultural) Lashaw-Ag-GW-091217 09/12/2017 --	Lashaw Well (Domestic) Lashaw-Dom-GW-091217 09/12/2017 225 ft bgs	Marlow Well Marlow-GW-091917 09/19/2017 82 ft bgs	Marlow Well FD02-GW-091917 09/19/2017 82 ft bgs Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	--	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	--	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	--	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	--	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	--	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	--	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	--	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	--	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	--	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	--	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	--	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	--	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	--	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	4.3 J	<2.4	--	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	--	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	--	<0.55
Acetone	µg/L	44.5	33.1	35.8	47.7	--	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	--	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	--	<4.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

	Location ID: Sample Name: Sample Date: Depth:	Asher Well Asher-GW-091217 09/12/2017 90 ft bgs	Lang Well Lang-GW-091217 09/12/2017 225 ft bgs	Lashaw Well (Agricultural) Lashaw-Ag-GW-091217 09/12/2017 --	Lashaw Well (Domestic) Lashaw-Dom-GW-091217 09/12/2017 225 ft bgs	Marlow Well Marlow-GW-091917 09/19/2017 82 ft bgs	Marlow Well FD02-GW-091917 09/19/2017 82 ft bgs Duplicate
Parameters							
	Unit						
Volatile Organic Compounds (Continued)							
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	--	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	--	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	--	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	1.5	0.59	--	142
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	--	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	--	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	0.66 J	<0.46	--	8.7
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	--	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	--	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	--	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	--	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	--	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	--	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	--	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	--	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	--	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	--	<2.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID: Sample Name: Sample Date: Depth:	Asher Well Asher-GW-091217 09/12/2017 90 ft bgs	Lang Well Lang-GW-091217 09/12/2017 225 ft bgs	Lashaw Well (Agricultural) Lashaw-Ag-GW-091217 09/12/2017 --	Lashaw Well (Domestic) Lashaw-Dom-GW-091217 09/12/2017 225 ft bgs	Marlow Well Marlow-GW-091917 09/19/2017 82 ft bgs	Marlow Well FD02-GW-091917 09/19/2017 82 ft bgs Duplicate	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	--	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	--	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	--	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	--	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	--	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	--	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	--	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	--	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.5 J	<2.6 J	14.0	<1.3 J	<1.4 J	<1.6 J
Metals							
Aluminum (dissolved)	µg/L	<8.6	<8.6	<8.6	<8.6	<8.6	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	79.9	15.1	36.9	10.4	29.0	29.3
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	59200	43100	33400	28300	46900	47500
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	37.4	8.3 J	0.85 J	3.2 J	22.7	26.8
Iron (dissolved)	µg/L	<16.7	128	180	<16.7	<16.7	<16.7
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID: Sample Name: Sample Date: Depth:	Asher Well Asher-GW-091217 09/12/2017 90 ft bgs	Lang Well Lang-GW-091217 09/12/2017 225 ft bgs	Lashaw Well (Agricultural) Lashaw-Ag-GW-091217 09/12/2017 --	Lashaw Well (Domestic) Lashaw-Dom-GW-091217 09/12/2017 225 ft bgs	Marlow Well Marlow-GW-091917 09/19/2017 82 ft bgs	Marlow Well FD02-GW-091917 09/19/2017 82 ft bgs Duplicate	
Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	21900	12900	13900	12800	14200	14300
Manganese (dissolved)	µg/L	0.43 J	7.3	36.2	2.2 J	<0.38	<0.38
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	2150 J	1500 J	4890	4570	1430 J	1440 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	22900	19300	19000	17800	13000	13200
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	10 J	5.9 J	2.9 J	14.3 J	8.8 J	8.7 J
Zinc (dissolved)	µg/L	10 J	87.4	487	7.3 J	43.2	48.5
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	226	194	176	156	169	165
Chemical oxygen demand (COD)	mg/L	25.1 J	16.6 J	29.3 J	36.2 J	<15.8	<15.8
Chloride	mg/L	7.2	1.7	2.6	1.5	14.7 J	14.7 J
Nitrate (as N)	mg/L	5.0 J	0.42 J	R	1.4 J	4.2 J	4.2 J
Nitrite/Nitrate	mg/L	4.4	0.45	<0.0075	1.2	3.2	3.2
Sulfate	mg/L	26.7	2.1	5.1	4.6	13.2 J	13.2 J
Sulfide	mg/L	<0.0050 J	<0.0050 J	<0.0050 J	<0.0050 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	341	226	214	202	275	292
Total organic carbon (TOC)	mg/L	0.74 J	<0.20	0.34 J	0.61 J	0.66 J	0.67 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow2-GW-101617	MW1D-GW-101017	MW1S-GW-101217	MW-2D-GW-091417	MW-3D-GW-091417
Sample Date:	10/16/2017	10/10/2017	10/12/2017	09/14/2017	09/14/2017
Depth:	80 ft bgs	93 ft bgs	20 ft bgs	140 ft bgs	173 ft bgs
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14 J	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15 J	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19 J	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22 J	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14 J	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18 J	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18 J	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14 J	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66 J	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18 J	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098 J	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0 J	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17 J	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21 J	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15 J	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41 J	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62 J	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18 J	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16 J	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13 J	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10 J	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6 J	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3 J	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40 J	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4 J	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20 J	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5 J	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12 J	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13 J	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55 J	<0.55	<0.55
Acetone	µg/L	47.5 J	30.9 J	38.7	<12.5 J
Acrolein	µg/L	<4.8	<4.8 J	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9 J	<4.9	<4.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D	
Sample Name:	Marlow2-GW-101617	MW1D-GW-101017	MW1S-GW-101217	MW-2D-GW-091417	MW-3D-GW-091417	
Sample Date:	10/16/2017	10/10/2017	10/12/2017	09/14/2017	09/14/2017	
Depth:	80 ft bgs	93 ft bgs	20 ft bgs	140 ft bgs	173 ft bgs	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.13	<0.13 J	<0.13	0.34 J	<0.13
Bromobenzene	µg/L	<0.16	<0.16 J	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20 J	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0 J	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5 J	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37 J	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	13.0	<0.20 J	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38 J	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44 J	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46 J	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1 J	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20 J	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13 J	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50 J	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31 J	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38 J	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48 J	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24 J	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2 J	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13 J	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42 J	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11 J	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14 J	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12 J	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	3.1 J	<2.2 J	<2.2	<2.3 J	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow2-GW-101617	MW1D-GW-101017	MW1S-GW-101217	MW-2D-GW-091417	MW-3D-GW-091417
Sample Date:	10/16/2017	10/10/2017	10/12/2017	09/14/2017	09/14/2017
Depth:	80 ft bgs	93 ft bgs	20 ft bgs	140 ft bgs	173 ft bgs
Parameters		Unit			
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.13	<0.13 J	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15 J	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16 J	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3 J	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17 J	<0.17	0.35 J
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21 J	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14 J	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8 J	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18 J	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13 J	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28 J	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5 J	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096 J	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24 J	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	7.2 J
Ethene	µg/L	<0.68	<0.68	<0.68	5.0 J
Methane	µg/L	1.5 J	<5.2 J	<1.1	187
Metals					
Aluminum (dissolved)	µg/L	13.2 J	<37.3 J	721	40.6 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	19.1	69.1	232	101
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	62500	53600	121000	37200
Chromium (dissolved)	µg/L	<0.50	0.56 J	0.73 J	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	5.2 J	1.4 J
Copper (dissolved)	µg/L	1.6 J	1.6 J	1.7 J	<0.83
Iron (dissolved)	µg/L	2250	22.7 J	1380	1320
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D	
Sample Name:	Marlow2-GW-101617	MW1D-GW-101017	MW1S-GW-101217	MW-2D-GW-091417	MW-3D-GW-091417	
Sample Date:	10/16/2017	10/10/2017	10/12/2017	09/14/2017	09/14/2017	
Depth:	80 ft bgs	93 ft bgs	20 ft bgs	140 ft bgs	173 ft bgs	
Parameters	Unit					
Metals (Continued)						
Magnesium (dissolved)	µg/L	17300	13400	30600	11600	9370
Manganese (dissolved)	µg/L	38.4	96.7	184	1910	49.8
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	2.1 J	1.9 J	4.2 J	2.1 J
Potassium (dissolved)	µg/L	908 J	1900 J	1180 J	5730	1320 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	17800	12400	37700	19000	15300
Thallium (dissolved)	µg/L	<8.0 J	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	3.2 J	1.4 J	7.7 J	0.56 J	1.8 J
Zinc (dissolved)	µg/L	33.0	4.5 J	36.1	5.4 J	3.1 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	251	204	474	175	152
Chemical oxygen demand (COD)	mg/L	<15.8	107	17.4 J	39.4 J	37.4 J
Chloride	mg/L	2.0	1.7 J	7.0	1.9	1.4
Nitrate (as N)	mg/L	0.67 J	<0.097 J	0.056 J	<0.0079 J	0.13 J
Nitrite/Nitrate	mg/L	0.48	0.090	<0.0075	0.0086 J	0.14
Sulfate	mg/L	2.9	3.6 J	19.2	1.0 J	5.9
Sulfide	mg/L	<0.0050 J	<0.025	R	<0.0050	0.016 J
Total dissolved solids (TDS)	mg/L	278	247	448	198	207
Total organic carbon (TOC)	mg/L	0.75 J	0.75 J	3.6	2.9	0.92 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Sample Name:	MW4D-GW-100517	MW5D-GW-101017	MW6D-GW-100517	MW6S-GW-101217	MW6U-GW-101217	MW7S-GW-101017
Sample Date:	10/05/2017	10/10/2017	10/05/2017	10/12/2017	10/12/2017	10/10/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	55 ft bgs	43.5 ft bgs

Parameters	Unit	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15 J	<0.15 J	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19 J	<0.19 J	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22 J	<0.22 J	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18 J	<0.18 J	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18 J	<0.18 J	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66 J	<0.66 J	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18 J	<0.18 J	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098 J	<0.098 J	<0.098	1.2	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0 J	<1.0 J	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17 J	<0.17 J	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21 J	<0.21 J	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15 J	<0.15 J	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41 J	<0.41 J	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62 J	<0.62 J	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18 J	<0.18 J	<0.18	0.26 J	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16 J	<0.16 J	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10 J	<0.10 J	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6 J	<22.6 J	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3 J	<1.3 J	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40 J	<0.40 J	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4 J	<2.4 J	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20 J	<0.20 J	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5 J	<2.5 J	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12 J	<0.12 J	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55 J	<0.55 J	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	48.3 J	21.6 J	28.4 J	34.6	21.1	32.3
Acrolein	µg/L	<4.8 J	<4.8 J	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9 J	<4.9 J	<4.9	<4.9	<4.9	<4.9

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Sample Name:	MW4D-GW-100517	MW5D-GW-101017	MW6D-GW-100517	MW6S-GW-101217	MW6U-GW-101217	MW7S-GW-101017
Sample Date:	10/05/2017	10/10/2017	10/05/2017	10/12/2017	10/12/2017	10/10/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	55 ft bgs	43.5 ft bgs

Parameters	Unit	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Volatile Organic Compounds (Continued)							
Benzene	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16 J	<0.16 J	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20 J	<0.20 J	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0 J	<1.0 J	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5 J	<1.5 J	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37 J	<0.37 J	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	4.4 J	<0.20 J	2.7	<0.20	40.3	1.3
Chlorobenzene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38 J	<0.38 J	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44 J	<0.44 J	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	1.0 J	<0.46 J	<0.46	<0.46	1.6	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1 J	<1.1 J	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20 J	<0.20 J	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12 J	<0.12 J	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50 J	<0.50 J	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31 J	<0.31 J	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38 J	<0.38 J	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12 J	<0.12 J	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48 J	<0.48 J	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24 J	<0.24 J	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2 J	<1.2 J	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12 J	<0.12 J	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42 J	<0.42 J	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11 J	<0.11 J	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12 J	<0.12 J	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2 J	<2.2 J	<2.2	<2.2	<2.2	<2.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Sample Name:	MW4D-GW-100517	MW5D-GW-101017	MW6D-GW-100517	MW6S-GW-101217	MW6U-GW-101217	MW7S-GW-101017
Sample Date:	10/05/2017	10/10/2017	10/05/2017	10/12/2017	10/12/2017	10/10/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	55 ft bgs	43.5 ft bgs

Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Butyl ethyl ether	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15 J	<0.15 J	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16 J	<0.16 J	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3 J	<4.3 J	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17 J	<0.17 J	<0.17	<0.17	<0.17	0.21 J
trans-1,2-Dichloroethene	µg/L	<0.21 J	<0.21 J	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14 J	<0.14 J	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8 J	<2.8 J	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18 J	<0.18 J	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13 J	<0.13 J	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28 J	<0.28 J	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5 J	<1.5 J	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096 J	<0.096 J	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24 J	<0.24 J	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.8 J	<2.6 J	<3.0 J	<1.2 J	<1.8 J	<1.8 J
Metals							
Aluminum (dissolved)	µg/L	407	<8.6	8.8 J	1970	38.8 J	<73.2 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	52.9	92.6	15.5	54.8	62.8	23.7
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	0.54 J	0.93 J
Calcium (dissolved)	µg/L	42600	50400	36100	36000	66200	41800
Chromium (dissolved)	µg/L	0.71 J	<0.50	<0.50	0.74 J	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	1.4 J	<1.1	<1.1
Copper (dissolved)	µg/L	3.0 J	1.6 J	1.1 J	1.2 J	0.87 J	<0.83
Iron (dissolved)	µg/L	638	<16.7	<16.7	2490	57.7	121
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	3.4 J	<3.0

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	MW-4D	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S
Sample Name:	MW4D-GW-100517	MW5D-GW-101017	MW6D-GW-100517	MW6S-GW-101217	MW6U-GW-101217	MW7S-GW-101017
Sample Date:	10/05/2017	10/10/2017	10/05/2017	10/12/2017	10/12/2017	10/10/2017
Depth:	185 ft bgs	145 ft bgs	222 ft bgs	40 ft bgs	55 ft bgs	43.5 ft bgs

Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	14700	15400	16700	9920	20000	11200
Manganese (dissolved)	µg/L	27.9	12.0	21.3	16.3	4.7 J	6.6
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	0.55	<0.062
Nickel (dissolved)	µg/L	15.8 J	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	3820	2990	7980	938 J	2050 J	1070 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	25500	23100	21000	11300	15800	13300
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	4.9 J	<4.8
Vanadium (dissolved)	µg/L	10.8 J	4.6 J	14.6 J	12.4 J	6.0 J	1.7 J
Zinc (dissolved)	µg/L	28.9	3.7 J	2.4 J	10.3 J	16.0 J	13.6 J
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	183	--	195	160	264	104
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	30.1 J	<15.8	99.5
Chloride	mg/L	6.8	--	3.3	1.6	4.4	10.3 J
Nitrate (as N)	mg/L	1.5 J	--	0.51 J	0.086 J	1.8 J	7.5
Nitrite/Nitrate	mg/L	1.6	0.41	0.60	0.073	1.8	7.8
Sulfate	mg/L	16.7	--	5.4	2.1	8.1	22.1 J
Sulfide	mg/L	0.0054 J	<0.0050	<0.0050	R	R	<0.0050
Total dissolved solids (TDS)	mg/L	271	--	239	218	240	236
Total organic carbon (TOC)	mg/L	0.93 J	0.60 J	0.51 J	1.9	1.3	19.7

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Sample Name:	MW8S-GW-101217	MW9D-GW-100517	MW9S-GW-101217	MW9U-GW-101217	MW10S-GW-101217	MW11S-GW-101217
Sample Date:	10/12/2017	10/05/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	66 ft bgs	71 ft bgs	72.5 ft bgs

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14 J	<0.72	<0.14	<0.14 J	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15 J	<0.76	<0.15	<0.15 J	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19 J	<0.94	<0.19	<0.19 J	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22 J	<1.1	<0.22	<0.22 J	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14 J	<0.72	<0.14	<0.14 J	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18 J	<0.90	<0.18	<0.18 J	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18 J	<0.88	<0.18	<0.18 J	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14 J	<0.72	<0.14	<0.14 J	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66 J	<3.3	<0.66	<0.66 J	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18 J	<0.89	<0.18	<0.18 J	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098 J	<0.49	<0.098	<0.098 J	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0 J	<5.2	<1.0	<1.0 J	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17 J	<0.86	<0.17	<0.17 J	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21 J	<1.0	<0.21	<0.21 J	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15 J	<0.76	<0.15	<0.15 J	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41 J	<2.1	<0.41	<0.41 J	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62 J	<3.1	<0.62	<0.62 J	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18 J	<0.90	<0.18	<0.18 J	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16 J	<0.80	<0.16	<0.16 J	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13 J	<0.64	<0.13	<0.13 J	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10 J	<0.52	<0.10	<0.10 J	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6 J	<113	<22.6	<22.6 J	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3 J	<6.5	<1.3	<1.3 J	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40 J	<2.0	<0.40	<0.40 J	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4 J	<12.1	<2.4	<2.4 J	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20 J	<1.0	<0.20	<0.20 J	<0.20
2-Hexanone	µg/L	<2.5	<2.5 J	<12.4	<2.5	<2.5 J	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12 J	<0.62	<0.12	<0.12 J	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13 J	<0.66	<0.13	<0.13 J	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55 J	<2.7	<0.55	<0.55 J	<0.55
Acetone	µg/L	38.3	28.2 J	67.0 J	34.8	29.5 J	45.7
Acrolein	µg/L	<4.8	<4.8 J	<24.2	<4.8	<4.8 J	<4.8
Acrylonitrile	µg/L	<4.9	<4.9 J	<24.4	<4.9	<4.9 J	<4.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Sample Name:	MW8S-GW-101217	MW9D-GW-100517	MW9S-GW-101217	MW9U-GW-101217	MW10S-GW-101217	MW11S-GW-101217
Sample Date:	10/12/2017	10/05/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	66 ft bgs	71 ft bgs	72.5 ft bgs

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Volatile Organic Compounds (Continued)							
Benzene	µg/L	<0.13	<0.13 J	<0.63	<0.13	<0.13 J	<0.13
Bromobenzene	µg/L	<0.16	<0.16 J	<0.78	<0.16	<0.16 J	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20 J	<1.0	<0.20	<0.20 J	<0.20
Bromoform	µg/L	<1.0	<1.0 J	<5.2	<1.0	<1.0 J	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5 J	<7.7	<1.5	<1.5 J	<1.5
Carbon disulfide	µg/L	1.0 J	<0.37 J	2.4 J	2.0	<0.37 J	<0.37
Carbon tetrachloride	µg/L	208	78.4 J	557	639	1.9 J	<0.20
Chlorobenzene	µg/L	<0.14	<0.14 J	<0.68	<0.14	<0.14 J	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38 J	<1.9	<0.38	<0.38 J	<0.38
Chloroethane	µg/L	<0.44	<0.44 J	<2.2	<0.44	<0.44 J	<0.44
Chloroform (Trichloromethane)	µg/L	51.7	3.6 J	72.5	17.3	<0.46 J	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1 J	<5.4	<1.1	<1.1 J	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20 J	<1.0	<0.20	<0.20 J	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12 J	<0.58	<0.12	<0.12 J	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14 J	<0.70	<0.14	<0.14 J	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13 J	<0.67	<0.13	<0.13 J	<0.13
Dibromomethane	µg/L	<0.50	<0.50 J	<2.5	<0.50	<0.50 J	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31 J	<1.6	<0.31	<0.31 J	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38 J	<1.9	<0.38	<0.38 J	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12 J	<0.62	<0.12	<0.12 J	<0.12
Ethylbenzene	µg/L	<0.14	<0.14 J	<0.68	<0.14	<0.14 J	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48 J	<2.4	<0.48	<0.48 J	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14 J	<0.70	<0.14	<0.14 J	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24 J	<1.2	<0.24	<0.24 J	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14 J	<0.72	<0.14	<0.14 J	<0.14
Methylene chloride	µg/L	<1.2	<1.2 J	<5.8	<1.2	<1.2 J	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13 J	<0.66	<0.13	<0.13 J	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12 J	<0.62	<0.12	<0.12 J	<0.12
Naphthalene	µg/L	<0.42	<0.42 J	<2.1	<0.42	<0.42 J	<0.42
o-Xylene	µg/L	<0.11	<0.11 J	<0.54	<0.11	<0.11 J	<0.11
Styrene	µg/L	<0.14	<0.14 J	<0.72	<0.14	<0.14 J	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12 J	<0.58	<0.12	<0.12 J	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2 J	<11.0	<2.2	<2.2 J	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Sample Name:	MW8S-GW-101217	MW9D-GW-100517	MW9S-GW-101217	MW9U-GW-101217	MW10S-GW-101217	MW11S-GW-101217
Sample Date:	10/12/2017	10/05/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	66 ft bgs	71 ft bgs	72.5 ft bgs

Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Butyl ethyl ether	µg/L	<0.13	<0.13 J	<0.64	<0.13	<0.13 J	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15 J	<0.74	<0.15	<0.15 J	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16 J	<0.79	<0.16	<0.16 J	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3 J	<21.6	<4.3	<4.3 J	<4.3
Toluene	µg/L	<0.17	<0.17 J	40.8	<0.17	<0.17 J	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21 J	<1.0	<0.21	<0.21 J	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14 J	<0.68	<0.14	<0.14 J	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8 J	<14.2	<2.8	<2.8 J	<2.8
Trichloroethene	µg/L	<0.18	<0.18 J	<0.91	<0.18	<0.18 J	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13 J	<0.64	<0.13	<0.13 J	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28 J	<1.4	<0.28	<0.28 J	<0.28
Vinyl acetate	µg/L	<1.5	<1.5 J	<7.4	<1.5	<1.5 J	<1.5
Vinyl chloride	µg/L	<0.096	<0.096 J	<0.48	<0.096	<0.096 J	<0.096
Xylenes (total)	µg/L	<0.24	<0.24 J	<1.2	<0.24	<0.24 J	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.1	<1.1	<2.0 J	<1.2 J	<1.4 J	<1.2 J
Metals							
Aluminum (dissolved)	µg/L	101 J	16.4 J	978	15.4 J	82.0 J	328
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	42.2	27.3	75.0	20.4	49.1	54.6
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	0.84 J	<0.46	0.94 J	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	48500	50300	68300	53700	82200	51700
Chromium (dissolved)	µg/L	<0.50	<0.50	0.51 J	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	1.1 J	<1.1	1.9 J	<1.1	1.3 J	1.6 J
Copper (dissolved)	µg/L	0.85 J	2.0 J	1.1 J	<0.83	<0.83	<0.83
Iron (dissolved)	µg/L	202	39.1 J	2030	<16.7	122	358
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-9U	MW-10S	MW-11S
Sample Name:	MW8S-GW-101217	MW9D-GW-100517	MW9S-GW-101217	MW9U-GW-101217	MW10S-GW-101217	MW11S-GW-101217
Sample Date:	10/12/2017	10/05/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth:	49.5 ft bgs	90 ft bgs	38.5 ft bgs	66 ft bgs	71 ft bgs	72.5 ft bgs

Parameters**Unit****Metals (Continued)**

Magnesium (dissolved)	µg/L	11700	14800	15300	14400	22800	14500
Manganese (dissolved)	µg/L	27.7	4.5 J	61.0	3.1 J	3.4 J	122
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	760 J	2610	1800 J	2200 J	881 J	1520 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	13600	18300	16000	14000	15000	20100
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	2.1 J	8.6 J	5.4 J	6.4 J	3.6 J	6.6 J
Zinc (dissolved)	µg/L	14.0 J	3.8 J	17.8 J	<1.8	4.0 J	8.8 J

General Chemistry

Alkalinity, total (as CaCO ₃)	mg/L	134	166	86.4	152	313	217
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	<15.8	33.9 J
Chloride	mg/L	1.8	8.9	28.6	9.6	0.72 J	1.0 J
Nitrate (as N)	mg/L	7.8 J	2.8 J	14.0 J	5.4 J	0.16 J	0.048 J
Nitrite/Nitrate	mg/L	7.1	2.8	14.8	6.2	0.19	0.057
Sulfate	mg/L	19.6	27.4	77.4	29.6	2.1	2.7
Sulfide	mg/L	R	<0.0050	R	R	0.0071 J	R
Total dissolved solids (TDS)	mg/L	283	274	439	292	324	248
Total organic carbon (TOC)	mg/L	1.3	0.89 J	1.7	0.78 J	0.44 J	1.1

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12S-GW-101217	MW13S-GW-101217	MW-14D-GW-091417	MW15D-GW-100217	MW16D-GW-100217	MW17D-GW-101017
Sample Date:	10/12/2017	10/12/2017	09/14/2017	10/02/2017	10/02/2017	10/10/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	126 ft bgs	97.5 ft bgs	214 ft bgs

Parameters	Unit	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	1.1	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	0.18 J	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	50.7	20.6	<8.8	22.4 J	29.4 J	35.6
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12S-GW-101217	MW13S-GW-101217	MW-14D-GW-091417	MW15D-GW-100217	MW16D-GW-100217	MW17D-GW-101017
Sample Date:	10/12/2017	10/12/2017	09/14/2017	10/02/2017	10/02/2017	10/10/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	126 ft bgs	97.5 ft bgs	214 ft bgs

Parameters	Unit	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Volatile Organic Compounds (Continued)							
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	<0.37	3.0
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	9.7	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	0.56 J	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12S-GW-101217	MW13S-GW-101217	MW-14D-GW-091417	MW15D-GW-100217	MW16D-GW-100217	MW17D-GW-101017
Sample Date:	10/12/2017	10/12/2017	09/14/2017	10/02/2017	10/02/2017	10/10/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	126 ft bgs	97.5 ft bgs	214 ft bgs

Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrichloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	2.9 J
Methane	µg/L	<2.9 J	<1.3 J	<2.9 J	<3.1 J	<1.1	<2.1 J
Metals							
Aluminum (dissolved)	µg/L	10400	<8.6	9050	<8.6	<8.6	<23.9 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	219	68.1	87.3	10.6	55.1	57.2
Beryllium (dissolved)	µg/L	<0.11	<0.11	0.11 J	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	81300	39900	34300	38600	58400	42900
Chromium (dissolved)	µg/L	5.3 J	<0.50	7.6 J	<0.50	0.70 J	1.2 J
Cobalt (dissolved)	µg/L	7.9 J	<1.1	4.2 J	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	4.0 J	0.83 J	4.2 J	2.2 J	<0.83	<0.83
Iron (dissolved)	µg/L	4690	<16.7	6330	<16.7	<16.7	158
Lead (dissolved)	µg/L	7.4 J	<3.0	11.0	<3.0	<3.0	<3.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12S-GW-101217	MW13S-GW-101217	MW-14D-GW-091417	MW15D-GW-100217	MW16D-GW-100217	MW17D-GW-101017
Sample Date:	10/12/2017	10/12/2017	09/14/2017	10/02/2017	10/02/2017	10/10/2017
Depth:	51 ft bgs	26 ft bgs	127 ft bgs	126 ft bgs	97.5 ft bgs	214 ft bgs

Parameters**Unit****Metals (Continued)**

Magnesium (dissolved)	µg/L	23500	11600	11100	14500	17600	18300
Manganese (dissolved)	µg/L	522	1.1 J	1440	<1.4 J	<0.79 J	275
Mercury (dissolved)	µg/L	<0.062	<0.062	0.25	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	7.4 J	<1.1	7.6 J	<1.1	<1.1	3.4 J
Potassium (dissolved)	µg/L	1160 J	1620 J	1570 J	2820	1500 J	17700
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	36900	14900	43700	15700	17500	56300
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	18.2	9.7 J	16.5	10 J	9.2 J	1.0 J
Zinc (dissolved)	µg/L	8.6 J	2.5 J	15.7 J	<1.8	<1.8	<1.8

General Chemistry

Alkalinity, total (as CaCO3)	mg/L	266	168	167	176	229	213
Chemical oxygen demand (COD)	mg/L	27.2 J	<15.8	79.2	<15.8	<15.8	56.5
Chloride	mg/L	40.4	1.2 J	4.3	3.0	5.9	35.7 J
Nitrate (as N)	mg/L	4.7 J	0.18 J	0.048 J	1.9 J	5.5 J	<0.0079
Nitrite/Nitrate	mg/L	4.9	0.22	0.026	1.9	6.0	0.015 J
Sulfate	mg/L	37.5	4.1	44.0	5.9 J	18.0 J	79.7 J
Sulfide	mg/L	0.052 J	R	<0.025	<0.0050	<0.0050	0.039
Total dissolved solids (TDS)	mg/L	234	498	315	250	339	458
Total organic carbon (TOC)	mg/L	3.4	0.42 J	11.7	0.48 J	0.73 J	11.7

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	Randall Well
Sample Name:	MW18D-GW-100217	MW19D-GW-100517	FD-GW-100517	MW20D-GW-100517	MW21D-GW-100217	Randall-GW-091917
Sample Date:	10/02/2017	10/05/2017	10/05/2017	10/05/2017	10/02/2017	09/19/2017
Depth:	154 ft bgs	165 ft bgs	165 ft bgs Duplicate	140 ft bgs	120 ft bgs	71 ft bgs

Parameters**Unit****Volatile Organic Compounds**

1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.29	<0.14	<0.14	<0.14	--
1,1,1-Trichloroethane	µg/L	<0.15	<0.30	<0.15	<0.15	<0.15	--
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.38	<0.19	<0.19	<0.19	--
1,1,2-Trichloroethane	µg/L	<0.22	<0.44	<0.22	<0.22	<0.22	--
1,1-Dichloroethane	µg/L	<0.14	<0.29	<0.14	<0.14	<0.14	--
1,1-Dichloroethene	µg/L	<0.18	<0.36	<0.18	<0.18	<0.18	--
1,1-Dichloropropene	µg/L	<0.18	<0.35	<0.18	<0.18	<0.18	--
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.29	<0.14	<0.14	<0.14	--
1,2,3-Trichloropropane	µg/L	<0.66	<1.3	<0.66	<0.66	<0.66	--
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.36	<0.18	<0.18	<0.18	--
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.20	<0.098	<0.098	<0.098	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<2.1	<1.0	<1.0	<1.0	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.34	<0.17	<0.17	<0.17	--
1,2-Dichlorobenzene	µg/L	<0.21	<0.42	<0.21	<0.21	<0.21	--
1,2-Dichloroethane	µg/L	<0.15	<0.30	<0.15	<0.15	<0.15	--
1,2-Dichloroethene (total)	µg/L	<0.41	<0.82	<0.41	<0.41	<0.41	--
1,2-Dichloropropane	µg/L	<0.62	<1.2	<0.62	<0.62	<0.62	--
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.36	<0.18	<0.18	<0.18	--
1,3-Dichlorobenzene	µg/L	<0.16	<0.32	<0.16	<0.16	<0.16	--
1,3-Dichloropropane	µg/L	<0.13	<0.26	<0.13	<0.13	<0.13	--
1,4-Dichlorobenzene	µg/L	<0.10	<0.21	<0.10	<0.10	<0.10	--
1,4-Dioxane	µg/L	<22.6	<45.2	<22.6	<22.6	<22.6	--
2,2,4-Trimethylpentane	µg/L	<1.3	<2.6	<1.3	<1.3	<1.3	--
2,2-Dichloropropane	µg/L	<0.40	<0.79	<0.40	<0.40	<0.40	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<4.8	<2.4	<2.4	<2.4	--
2-Chlorotoluene	µg/L	<0.20	<0.41	<0.20	<0.20	<0.20	--
2-Hexanone	µg/L	<2.5	<5.0	<2.5	<2.5	<2.5	--
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.25	<0.12	<0.12	<0.12	--
4-Chlorotoluene	µg/L	<0.13	<0.26	<0.13	<0.13	<0.13	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<1.1	<0.55	<0.55	<0.55	--
Acetone	µg/L	58.0 J	50.8	51.7	24.8	28.6 J	--
Acrolein	µg/L	<4.8	<9.7	<4.8	<4.8	<4.8	--
Acrylonitrile	µg/L	<4.9	<9.8	<4.9	<4.9	<4.9	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	Randall Well
Sample Name:	MW18D-GW-100217	MW19D-GW-100517	FD-GW-100517	MW20D-GW-100517	MW21D-GW-100217	Randall-GW-091917
Sample Date:	10/02/2017	10/05/2017	10/05/2017	10/05/2017	10/02/2017	09/19/2017
Depth:	154 ft bgs	165 ft bgs	165 ft bgs Duplicate	140 ft bgs	120 ft bgs	71 ft bgs

Parameters**Unit****Volatile Organic Compounds (Continued)**

Parameters	Unit	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	Randall Well
Benzene	µg/L	<0.13	<0.25	<0.13	<0.13	<0.13	--
Bromobenzene	µg/L	<0.16	<0.31	<0.16	<0.16	<0.16	--
Bromodichloromethane	µg/L	<0.20	<0.40	<0.20	<0.20	<0.20	--
Bromoform	µg/L	<1.0	<2.1	<1.0	<1.0	<1.0	--
Bromomethane (Methyl bromide)	µg/L	<1.5	<3.1	<1.5	<1.5	<1.5	--
Carbon disulfide	µg/L	<0.37	0.97 J	0.89 J	<0.37	<0.37	--
Carbon tetrachloride	µg/L	<0.20	329	345	29.3	<0.20	--
Chlorobenzene	µg/L	<0.14	<0.27	<0.14	<0.14	<0.14	--
Chlorobromomethane	µg/L	<0.38	<0.76	<0.38	<0.38	<0.38	--
Chloroethane	µg/L	<0.44	<0.88	<0.44	<0.44	<0.44	--
Chloroform (Trichloromethane)	µg/L	<0.46	18.9	21.7	1.5	<0.46	--
Chloromethane (Methyl chloride)	µg/L	<1.1	<2.2	<1.1	<1.1	<1.1	--
cis-1,2-Dichloroethene	µg/L	<0.20	<0.40	<0.20	<0.20	<0.20	--
cis-1,3-Dichloropropene	µg/L	<0.12	<0.23	<0.12	<0.12	<0.12	--
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.28	<0.14	<0.14	<0.14	--
Dibromochloromethane	µg/L	<0.13	<0.27	<0.13	<0.13	<0.13	--
Dibromomethane	µg/L	<0.50	<1.0	<0.50	<0.50	<0.50	--
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.63	<0.31	<0.31	<0.31	--
Dichlorofluoromethane	µg/L	<0.38	<0.77	<0.38	<0.38	<0.38	--
Diisopropyl ether	µg/L	<0.12	<0.25	<0.12	<0.12	<0.12	--
Ethylbenzene	µg/L	<0.14	<0.27	<0.14	<0.14	<0.14	--
Hexachlorobutadiene	µg/L	<0.48	<0.96	<0.48	<0.48	<0.48	--
Isopropyl benzene	µg/L	<0.14	<0.28	<0.14	<0.14	<0.14	--
m&p-Xylenes	µg/L	<0.24	<0.49	<0.24	<0.24	<0.24	--
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.29	<0.14	<0.14	<0.14	--
Methylene chloride	µg/L	<1.2	<2.3	<1.2	<1.2	<1.2	--
N-Butylbenzene	µg/L	<0.13	<0.27	<0.13	<0.13	<0.13	--
N-Propylbenzene	µg/L	<0.12	<0.25	<0.12	<0.12	<0.12	--
Naphthalene	µg/L	<0.42	<0.84	<0.42	<0.42	<0.42	--
o-Xylene	µg/L	<0.11	<0.22	<0.11	<0.11	<0.11	--
Styrene	µg/L	<0.14	<0.29	<0.14	<0.14	<0.14	--
tert-Amyl methyl ether	µg/L	<0.12	<0.23	<0.12	<0.12	<0.12	--
tert-Butyl alcohol	µg/L	<2.2	<4.4	<2.2	<2.2	<2.2	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	Randall Well
Sample Name:	MW18D-GW-100217	MW19D-GW-100517	FD-GW-100517	MW20D-GW-100517	MW21D-GW-100217	Randall-GW-091917
Sample Date:	10/02/2017	10/05/2017	10/05/2017	10/05/2017	10/02/2017	09/19/2017
Depth:	154 ft bgs	165 ft bgs	165 ft bgs Duplicate	140 ft bgs	120 ft bgs	71 ft bgs
Parameters						
Unit						
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.13	<0.26	<0.13	<0.13	--
tert-Butylbenzene	µg/L	<0.15	<0.29	<0.15	<0.15	--
Tetrachloroethene	µg/L	<0.16	<0.32	<0.16	<0.16	--
Tetrahydrofuran	µg/L	<4.3	<8.6	<4.3	<4.3	--
Toluene	µg/L	<0.17	0.52 J	<0.17	<0.17	--
trans-1,2-Dichloroethene	µg/L	<0.21	<0.42	<0.21	<0.21	--
trans-1,3-Dichloropropene	µg/L	<0.14	<0.27	<0.14	<0.14	--
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<5.7	<2.8	<2.8	--
Trichloroethene	µg/L	<0.18	<0.36	<0.18	<0.18	--
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.26	<0.13	<0.13	--
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.55	<0.28	<0.28	--
Vinyl acetate	µg/L	<1.5	<3.0	<1.5	<1.5	--
Vinyl chloride	µg/L	<0.096	<0.19	<0.096	<0.096	--
Xylenes (total)	µg/L	<0.24	<0.49	<0.24	<0.24	--
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<2.7 J	<1.7 J	<2.2 J	<2.5 J	<1.1
Metals						
Aluminum (dissolved)	µg/L	<8.6	44.2 J	<8.6	14.8 J	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	53.9	12.7	12.3	25.1	84.6
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	22200	44700	44700	61500	25500
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	<0.83	2.0 J	2.0 J	1.3 J	<0.83
Iron (dissolved)	µg/L	75.6	<16.7	<16.7	<16.7	257
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	Randall Well
Sample Name:	MW18D-GW-100217	MW19D-GW-100517	FD-GW-100517	MW20D-GW-100517	MW21D-GW-100217	Randall-GW-091917
Sample Date:	10/02/2017	10/05/2017	10/05/2017	10/05/2017	10/02/2017	09/19/2017
Depth:	154 ft bgs	165 ft bgs	165 ft bgs Duplicate	140 ft bgs	120 ft bgs	71 ft bgs

Parameters**Unit****Metals (Continued)**

Magnesium (dissolved)	µg/L	16200	19300	19300	23300	22900	14900
Manganese (dissolved)	µg/L	57.1	6.9	7.0	19.2	137	0.75 J
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	4050	4720	4730	4140	4530	1540 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	20000	17300	17400	22700	25500	14600
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	<0.42	5.7 J	5.5 J	5.5 J	0.44 J	6.0 J
Zinc (dissolved)	µg/L	<1.8	6.0 J	5.1 J	1.9 J	<1.8	31.4

General Chemistry

Alkalinity, total (as CaCO ₃)	mg/L	162	181	184	268	208	196
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	2.8	7.0	7.1	5.7	3.3	5.4 J
Nitrate (as N)	mg/L	<0.0079 J	4.4 J	4.5 J	1.1 J	<0.0079 J	2.5 J
Nitrite/Nitrate	mg/L	<0.0075	4.5	4.7	1.2	<0.0075	1.9
Sulfate	mg/L	8.4 J	23.4	23.6	7.7	9.8 J	9.2 J
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0067 J	<0.0050
Total dissolved solids (TDS)	mg/L	203	283	303	325	246	261
Total organic carbon (TOC)	mg/L	0.53 J	0.65 J	0.66 J	0.95 J	0.72 J	0.48 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
Sample Name:	FD01-GW-091917	Reed-GW-091317	Silva-GW-091217	Silva-GW-092517	Silva-GW-092917	Stark-GW-091217
Sample Date:	09/19/2017	09/13/2017	09/12/2017	09/25/2017	09/29/2017	09/12/2017
Depth:	71 ft bgs Duplicate	119.5 ft bgs	100 ft bgs	100 ft bgs	100 ft bgs	104 ft bgs

Parameters	Unit	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	24.3	36.2	21.4	30.3	26.2	22.1
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID: Sample Name: Sample Date: Depth:	Randall Well FD01-GW-091917 09/19/2017 71 ft bgs Duplicate	Reed Well (W30) Reed-GW-091317 09/13/2017 119.5 ft bgs	Silva Well Silva-GW-091217 09/12/2017 100 ft bgs	Silva Well Silva-GW-092517 09/25/2017 100 ft bgs	Silva Well Silva-GW-092917 09/29/2017 100 ft bgs	Stark Well (W15) Stark-GW-091217 09/12/2017 104 ft bgs
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	0.54 J	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	256	<0.20	0.98	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	10.5	<0.46	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

	Location ID:	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
	Sample Name:	FD01-GW-091917	Reed-GW-091317	Silva-GW-091217	Silva-GW-092517	Silva-GW-092917	Stark-GW-091217
	Sample Date:	09/19/2017	09/13/2017	09/12/2017	09/25/2017	09/29/2017	09/12/2017
	Depth:	71 ft bgs Duplicate	119.5 ft bgs	100 ft bgs	100 ft bgs	100 ft bgs	104 ft bgs
Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	--	--	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	--	--	<0.68
Methane	µg/L	<1.5 J	<1.8 J	<1.8 J	--	--	<1.2 J
Metals							
Aluminum (dissolved)	µg/L	9.2 J	<8.6	<8.6	--	--	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	--	--	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	--	--	<5.2
Barium (dissolved)	µg/L	21.0	50.0	30.1	--	--	32.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	--	--	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	--	--	<0.46
Calcium (dissolved)	µg/L	46500	27200	40100	--	--	29800
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	--	--	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	--	--	1.8 J
Copper (dissolved)	µg/L	3.3 J	1.2 J	25.2	--	--	191
Iron (dissolved)	µg/L	<16.7	<16.7	<16.7	--	--	<16.7
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	--	--	<3.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Location ID:	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
Sample Name:	FD01-GW-091917	Reed-GW-091317	Silva-GW-091217	Silva-GW-092517	Silva-GW-092917	Stark-GW-091217
Sample Date:	09/19/2017	09/13/2017	09/12/2017	09/25/2017	09/29/2017	09/12/2017
Depth:	71 ft bgs Duplicate	119.5 ft bgs	100 ft bgs	100 ft bgs	100 ft bgs	104 ft bgs

Parameters**Unit****Metals (Continued)**

Parameter	Unit	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
Magnesium (dissolved)	µg/L	15200	11000	13700	--	--	12800
Manganese (dissolved)	µg/L	0.75 J	0.84 J	<0.38	--	--	25.3
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	--	--	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	--	--	9.0 J
Potassium (dissolved)	µg/L	1580 J	3380	1830 J	--	--	3610
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	--	--	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	--	--	<0.27
Sodium (dissolved)	µg/L	15100	14500	16200	--	--	17400
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	--	--	<4.8
Vanadium (dissolved)	µg/L	6.1 J	22.0	9.4 J	--	--	4.0 J
Zinc (dissolved)	µg/L	36.4	32.9	53.8	--	--	24.0

General Chemistry

Parameter	Unit	Randall Well	Reed Well (W30)	Silva Well	Silva Well	Silva Well	Stark Well (W15)
Alkalinity, total (as CaCO ₃)	mg/L	197	138	169	--	--	141
Chemical oxygen demand (COD)	mg/L	<15.8	23.3 J	24.2 J	--	--	21.7 J
Chloride	mg/L	5.4 J	1.3	2.3	--	--	1.3
Nitrate (as N)	mg/L	2.5 J	0.27 J	2.2 J	--	--	0.78 J
Nitrite/Nitrate	mg/L	1.9	0.29	2.1	--	--	0.96
Sulfate	mg/L	9.6 J	5.8	9.4	--	--	17.9
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	--	--	<0.0050 J
Total dissolved solids (TDS)	mg/L	271	184	232	--	--	203
Total organic carbon (TOC)	mg/L	0.49 J	<0.20	0.39 J	--	--	0.24 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	Thorson-GW-091207	W20-GW-101617	W26-GW-101617	WS5-GW-101117
	Sample Date:	09/12/2017	10/16/2017	10/16/2017	10/11/2017
	Depth:	160 ft bgs	140 ft bgs	92 ft bgs	133.5 ft bgs
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	0.70	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	0.22 J	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	21.6	31.2 J	12.4 J	34.6
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	Thorson-GW-091207	W20-GW-101617	W26-GW-101617	WS5-GW-101117
Sample Date:	09/12/2017	10/16/2017	10/16/2017	10/11/2017
Depth:	160 ft bgs	140 ft bgs	92 ft bgs	133.5 ft bgs

Parameters	Unit	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
Volatile Organic Compounds (Continued)					
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	27.0	8.1
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	1.5	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	Thorson-GW-091207	W20-GW-101617	W26-GW-101617	WS5-GW-101117
	Sample Date:	09/12/2017	10/16/2017	10/16/2017	10/11/2017
	Depth:	160 ft bgs	140 ft bgs	92 ft bgs	133.5 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.7 J	183	1.3 J	<2.3 J
Metals					
Aluminum (dissolved)	µg/L	<8.6	<8.6	<8.6	<15.5 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	56.4	9.8 J	6.1 J	51.6
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	24300	28100	38000	35800
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	<0.83	<0.83	<0.83	6.1 J
Iron (dissolved)	µg/L	1260	1130	<16.7	<16.7
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

	Location ID:	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	Thorson-GW-091207	W20-GW-101617	W26-GW-101617	WS5-GW-101117
	Sample Date:	09/12/2017	10/16/2017	10/16/2017	10/11/2017
	Depth:	160 ft bgs	140 ft bgs	92 ft bgs	133.5 ft bgs
Parameters	Unit				
Metals (Continued)					
Magnesium (dissolved)	µg/L	12800	9980	10900	15800
Manganese (dissolved)	µg/L	29.0	43.5	0.52 J	<0.38
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	4140	2060 J	2180 J	5210
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	15500	9510	14000	16100
Thallium (dissolved)	µg/L	<4.8	<7.9 J	<9.6 J	<4.8
Vanadium (dissolved)	µg/L	<0.42	3.8 J	6.9 J	18.5
Zinc (dissolved)	µg/L	14.3 J	21.6	107	29.8
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	149	113	160	172
Chemical oxygen demand (COD)	mg/L	16.2 J	<15.8	<15.8	<15.8
Chloride	mg/L	1.2 J	8.7	3.3	3.0 J
Nitrate (as N)	mg/L	R	2.0 J	2.1 J	1.0
Nitrite/Nitrate	mg/L	<0.0075	1.7	1.9	1.0
Sulfate	mg/L	3.0	5.4	6.0	5.5 J
Sulfide	mg/L	0.070 J	3.0 J	<0.0050 J	<0.0050
Total dissolved solids (TDS)	mg/L	202	149	210	218
Total organic carbon (TOC)	mg/L	<0.20	0.97 J	0.58 J	0.26 J

Notes:
 "--" - Not analyzed
 < - Not detected at the associated reporting limit
 < () J - Not detected; associated reporting limit is estimated
 ft bgs - Feet below ground surface
 J - Estimated concentration
 R - Rejected

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017**

Parameter	Sample ID	Holding Time	Holding Time Criteria	Analyte	Qualified Sample Results	Units
General Chemistry	Lashaw-AG-GW-091217	>96 hours	48 hours	Nitrate (as N)	R	
	Lashaw-DOM-GW-091217	>96 hours	48 hours	Nitrate (as N)	1.4 J	mg/L
	Silva-GW-091217	>96 hours	48 hours	Nitrate (as N)	2.2 J	mg/L
	Lang-GW-091217	>96 hours	48 hours	Nitrate (as N)	0.42 J	mg/L
	Stark-GW-091217	>96 hours	48 hours	Nitrate (as N)	0.78 J	mg/L
	Thorson-GW-091207	>96 hours	48 hours	Nitrate (as N)	R	
	Asher-GW-091217	>96 hours	48 hours	Nitrate (as N)	5.0 J	mg/L
	Reed-GW-091317	>48 hours	48 hours	Nitrate (as N)	0.27 J	mg/L
	MW-2D-GW-091417	>48 hours	48 hours	Nitrate (as N)	<0.0079 J	mg/L
	MW-14D-GW-091417	>48 hours	48 hours	Nitrate (as N)	0.048 J	mg/L
	MW-3D-GW-091417	>48 hours	48 hours	Nitrate (as N)	0.13 J	mg/L
	Marlow-GW-091917	>48 hours	48 hours	Nitrate (as N)	4.2 J	mg/L
	Randall-GW-091917	>48 hours	48 hours	Nitrate (as N)	2.5 J	mg/L
	FD01-GW-091917	>48 hours	48 hours	Nitrate (as N)	2.5 J	mg/L
	FD02-GW-091917	>48 hours	48 hours	Nitrate (as N)	4.2 J	mg/L
	MW21D-GW-100217	>48 hours	48 hours	Nitrate (as N)	<0.0079 J	mg/L
	MW16D-GW-100217	>48 hours	48 hours	Nitrate (as N)	5.5 J	mg/L
	MW18D-GW-100217	>48 hours	48 hours	Nitrate (as N)	<0.0079 J	mg/L
	MW15D-GW-100217	>48 hours	48 hours	Nitrate (as N)	1.9 J	mg/L
	MW6D-GW-100517	>48 hours	48 hours	Nitrate (as N)	0.51 J	mg/L
	MW4D-GW-100517	>48 hours	48 hours	Nitrate (as N)	1.5 J	mg/L
	MW9D-GW-100517	>48 hours	48 hours	Nitrate (as N)	2.8 J	mg/L
	MW20D-GW-100517	>96 hours	48 hours	Nitrate (as N)	1.1 J	mg/L
	MW19D-GW-100517	>96 hours	48 hours	Nitrate (as N)	4.4 J	mg/L
	FD-GW-100517	>96 hours	48 hours	Nitrate (as N)	4.5 J	mg/L
	MW1S-GW-101217	>48 hours	48 hours	Nitrate (as N)	0.056 J	mg/L
	MW9S-GW-101217	>96 hours	48 hours	Nitrate (as N)	14.0 J	mg/L

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017**

Parameter	Sample ID	Holding Time	Holding Time Criteria	Analyte	Qualified Sample Results	Units
	MW8S-GW-101217	>48 hours	48 hours	Nitrate (as N)	7.8 J	mg/L
	MW10S-GW-101217	>48 hours	48 hours	Nitrate (as N)	0.16 J	mg/L
	MW11S-GW-101217	>96 hours	48 hours	Nitrate (as N)	0.048 J	mg/L
	MW6U-GW-101217	>96 hours	48 hours	Nitrate (as N)	1.8 J	mg/L
	MW6S-GW-101217	>96 hours	48 hours	Nitrate (as N)	0.086 J	mg/L
	MW13S-GW-101217	>96 hours	48 hours	Nitrate (as N)	0.18 J	mg/L
	MW12S-GW-101217	>96 hours	48 hours	Nitrate (as N)	4.7 J	mg/L
	MW9U-GW-101217	>96 hours	48 hours	Nitrate (as N)	5.4 J	mg/L
	W20-GW-101617	>48 hours	48 hours	Nitrate (as N)	2.0 J	mg/L
	W26-GW-101617	>48 hours	48 hours	Nitrate (as N)	2.1 J	mg/L
	Marlow2-GW-101617	>48 hours	48 hours	Nitrate (as N)	0.67 J	mg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW4D-GW-100517	1,1,1,2-Tetrachloroethane	<0.14 J	µg/L
		1,1,1-Trichloroethane	<0.15 J	µg/L
		1,1,2,2-Tetrachloroethane	<0.19 J	µg/L
		1,1,2-Trichloroethane	<0.22 J	µg/L
		1,1-Dichloroethane	<0.14 J	µg/L
		1,1-Dichloroethene	<0.18 J	µg/L
		1,1-Dichloropropene	<0.18 J	µg/L
		1,2,3-Trichlorobenzene	<0.14 J	µg/L
		1,2,3-Trichloropropane	<0.66 J	µg/L
		1,2,4-Trichlorobenzene	<0.18 J	µg/L
		1,2,4-Trimethylbenzene	<0.098 J	µg/L
		1,2-Dibromo-3-chloropropane (DBCP)	<1.0 J	µg/L
		1,2-Dibromoethane (Ethylene dibromide)	<0.17 J	µg/L
		1,2-Dichlorobenzene	<0.21 J	µg/L
		1,2-Dichloroethane	<0.15 J	µg/L
		1,2-Dichloroethene (total)	<0.41 J	µg/L
		1,2-Dichloropropane	<0.62 J	µg/L
		1,3,5-Trimethylbenzene	<0.18 J	µg/L
		1,3-Dichlorobenzene	<0.16 J	µg/L
		1,3-Dichloropropane	<0.13 J	µg/L
		1,4-Dichlorobenzene	<0.10 J	µg/L
		1,4-Dioxane	<22.6 J	µg/L
		2,2,4-Trimethylpentane	<1.3 J	µg/L
		2,2-Dichloropropane	<0.40 J	µg/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<2.4 J	µg/L
		2-Chlorotoluene	<0.20 J	µg/L
		2-Hexanone	<2.5 J	µg/L
		2-Phenylbutane (sec-Butylbenzene)	<0.12 J	µg/L
		4-Chlorotoluene	<0.13 J	µg/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.55 J	µg/L
		Acetone	48.3 J	µg/L
		Acrolein	<4.8 J	µg/L
		Acrylonitrile	<4.9 J	µg/L
		Benzene	<0.13 J	µg/L
Bromobenzene	<0.16 J	µg/L		
Bromodichloromethane	<0.20 J	µg/L		
Bromoform	<1.0 J	µg/L		
Bromomethane (Methyl bromide)	<1.5 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW4D-GW-100517	Carbon disulfide	<0.37 J	µg/L
		Carbon tetrachloride	4.4 J	µg/L
		Chlorobenzene	<0.14 J	µg/L
		Chlorobromomethane	<0.38 J	µg/L
		Chloroethane	<0.44 J	µg/L
		Chloroform (Trichloromethane)	1.0 J	µg/L
		Chloromethane (Methyl chloride)	<1.1 J	µg/L
		cis-1,2-Dichloroethene	<0.20 J	µg/L
		cis-1,3-Dichloropropene	<0.12 J	µg/L
		Cymene (p-Isopropyltoluene)	<0.14 J	µg/L
		Dibromochloromethane	<0.13 J	µg/L
		Dibromomethane	<0.50 J	µg/L
		Dichlorodifluoromethane (CFC-12)	<0.31 J	µg/L
		Dichlorofluoromethane	<0.38 J	µg/L
		Diisopropyl ether	<0.12 J	µg/L
		Ethylbenzene	<0.14 J	µg/L
		Hexachlorobutadiene	<0.48 J	µg/L
		Isopropyl benzene	<0.14 J	µg/L
		m&p-Xylenes	<0.24 J	µg/L
		Methyl tert butyl ether (MTBE)	<0.14 J	µg/L
		Methylene chloride	<1.2 J	µg/L
		N-Butylbenzene	<0.13 J	µg/L
		N-Propylbenzene	<0.12 J	µg/L
		Naphthalene	<0.42 J	µg/L
		o-Xylene	<0.11 J	µg/L
		Styrene	<0.14 J	µg/L
		tert-Amyl methyl ether	<0.12 J	µg/L
		tert-Butyl alcohol	<2.2 J	µg/L
		tert-Butyl ethyl ether	<0.13 J	µg/L
		tert-Butylbenzene	<0.15 J	µg/L
		Tetrachloroethene	<0.16 J	µg/L
		Tetrahydrofuran	<4.3 J	µg/L
		Toluene	<0.17 J	µg/L
trans-1,2-Dichloroethene	<0.21 J	µg/L		
trans-1,3-Dichloropropene	<0.14 J	µg/L		
trans-1,4-Dichloro-2-butene	<2.8 J	µg/L		
Trichloroethene	<0.18 J	µg/L		
Trichlorofluoromethane (CFC-11)	<0.13 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW4D-GW-100517	Trifluorotrchloroethane (CFC-113)	<0.28 J	µg/L
		Vinyl acetate	<1.5 J	µg/L
		Vinyl chloride	<0.096 J	µg/L
		Xylenes (total)	<0.24 J	µg/L
	MW9D-GW-100517	1,1,1,2-Tetrachloroethane	<0.14 J	µg/L
		1,1,1-Trichloroethane	<0.15 J	µg/L
		1,1,2,2-Tetrachloroethane	<0.19 J	µg/L
		1,1,2-Trichloroethane	<0.22 J	µg/L
		1,1-Dichloroethane	<0.14 J	µg/L
		1,1-Dichloroethene	<0.18 J	µg/L
		1,1-Dichloropropene	<0.18 J	µg/L
		1,2,3-Trichlorobenzene	<0.14 J	µg/L
		1,2,3-Trichloropropane	<0.66 J	µg/L
		1,2,4-Trichlorobenzene	<0.18 J	µg/L
		1,2,4-Trimethylbenzene	<0.098 J	µg/L
		1,2-Dibromo-3-chloropropane (DBCP)	<1.0 J	µg/L
		1,2-Dibromoethane (Ethylene dibromide)	<0.17 J	µg/L
		1,2-Dichlorobenzene	<0.21 J	µg/L
		1,2-Dichloroethane	<0.15 J	µg/L
		1,2-Dichloroethene (total)	<0.41 J	µg/L
		1,2-Dichloropropane	<0.62 J	µg/L
		1,3,5-Trimethylbenzene	<0.18 J	µg/L
		1,3-Dichlorobenzene	<0.16 J	µg/L
		1,3-Dichloropropane	<0.13 J	µg/L
		1,4-Dichlorobenzene	<0.10 J	µg/L
		1,4-Dioxane	<22.6 J	µg/L
		2,2,4-Trimethylpentane	<1.3 J	µg/L
2,2-Dichloropropane	<0.40 J	µg/L		
2-Butanone (Methyl ethyl ketone) (MEK)	<2.4 J	µg/L		
2-Chlorotoluene	<0.20 J	µg/L		
2-Hexanone	<2.5 J	µg/L		
2-Phenylbutane (sec-Butylbenzene)	<0.12 J	µg/L		
4-Chlorotoluene	<0.13 J	µg/L		
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.55 J	µg/L		
Acetone	28.2 J	µg/L		
Acrolein	<4.8 J	µg/L		
Acrylonitrile	<4.9 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW9D-GW-100517	Benzene	<0.13 J	µg/L
		Bromobenzene	<0.16 J	µg/L
		Bromodichloromethane	<0.20 J	µg/L
		Bromoform	<1.0 J	µg/L
		Bromomethane (Methyl bromide)	<1.5 J	µg/L
		Carbon disulfide	<0.37 J	µg/L
		Carbon tetrachloride	78.4 J	µg/L
		Chlorobenzene	<0.14 J	µg/L
		Chlorobromomethane	<0.38 J	µg/L
		Chloroethane	<0.44 J	µg/L
		Chloroform (Trichloromethane)	3.6 J	µg/L
		Chloromethane (Methyl chloride)	<1.1 J	µg/L
		cis-1,2-Dichloroethene	<0.20 J	µg/L
		cis-1,3-Dichloropropene	<0.12 J	µg/L
		Cymene (p-Isopropyltoluene)	<0.14 J	µg/L
		Dibromochloromethane	<0.13 J	µg/L
		Dibromomethane	<0.50 J	µg/L
		Dichlorodifluoromethane (CFC-12)	<0.31 J	µg/L
		Dichlorofluoromethane	<0.38 J	µg/L
		Diisopropyl ether	<0.12 J	µg/L
		Ethylbenzene	<0.14 J	µg/L
		Hexachlorobutadiene	<0.48 J	µg/L
		Isopropyl benzene	<0.14 J	µg/L
		m&p-Xylenes	<0.24 J	µg/L
		Methyl tert butyl ether (MTBE)	<0.14 J	µg/L
		Methylene chloride	<1.2 J	µg/L
		N-Butylbenzene	<0.13 J	µg/L
		N-Propylbenzene	<0.12 J	µg/L
		Naphthalene	<0.42 J	µg/L
		o-Xylene	<0.11 J	µg/L
		Styrene	<0.14 J	µg/L
		tert-Amyl methyl ether	<0.12 J	µg/L
		tert-Butyl alcohol	<2.2 J	µg/L
tert-Butyl ethyl ether	<0.13 J	µg/L		
tert-Butylbenzene	<0.15 J	µg/L		
Tetrachloroethene	<0.16 J	µg/L		
Tetrahydrofuran	<4.3 J	µg/L		
Toluene	<0.17 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW9D-GW-100517	trans-1,2-Dichloroethene	<0.21 J	µg/L
		trans-1,3-Dichloropropene	<0.14 J	µg/L
		trans-1,4-Dichloro-2-butene	<2.8 J	µg/L
		Trichloroethene	<0.18 J	µg/L
		Trichlorofluoromethane (CFC-11)	<0.13 J	µg/L
		Trifluorotrchloroethane (CFC-113)	<0.28 J	µg/L
		Vinyl acetate	<1.5 J	µg/L
		Vinyl chloride	<0.096 J	µg/L
		Xylenes (total)	<0.24 J	µg/L
	MW5D-GW-101017	1,1,1,2-Tetrachloroethane	<0.14 J	µg/L
		1,1,1-Trichloroethane	<0.15 J	µg/L
		1,1,2,2-Tetrachloroethane	<0.19 J	µg/L
		1,1,2-Trichloroethane	<0.22 J	µg/L
		1,1-Dichloroethane	<0.14 J	µg/L
		1,1-Dichloroethene	<0.18 J	µg/L
		1,1-Dichloropropene	<0.18 J	µg/L
		1,2,3-Trichlorobenzene	<0.14 J	µg/L
		1,2,3-Trichloropropane	<0.66 J	µg/L
		1,2,4-Trichlorobenzene	<0.18 J	µg/L
1,2,4-Trimethylbenzene		<0.098 J	µg/L	
1,2-Dibromo-3-chloropropane (DBCP)		<1.0 J	µg/L	
1,2-Dibromoethane (Ethylene dibromide)		<0.17 J	µg/L	
1,2-Dichlorobenzene		<0.21 J	µg/L	
1,2-Dichloroethane		<0.15 J	µg/L	
1,2-Dichloroethene (total)		<0.41 J	µg/L	
1,2-Dichloropropane		<0.62 J	µg/L	
1,3,5-Trimethylbenzene		<0.18 J	µg/L	
1,3-Dichlorobenzene		<0.16 J	µg/L	
1,3-Dichloropropane		<0.13 J	µg/L	
1,4-Dichlorobenzene	<0.10 J	µg/L		
1,4-Dioxane	<22.6 J	µg/L		
2,2,4-Trimethylpentane	<1.3 J	µg/L		
2,2-Dichloropropane	<0.40 J	µg/L		
2-Butanone (Methyl ethyl ketone) (MEK)	<2.4 J	µg/L		
2-Chlorotoluene	<0.20 J	µg/L		
2-Hexanone	<2.5 J	µg/L		
2-Phenylbutane (sec-Butylbenzene)	<0.12 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW5D-GW-101017	4-Chlorotoluene	<0.13 J	µg/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.55 J	µg/L
		Acetone	21.6 J	µg/L
		Acrolein	<4.8 J	µg/L
		Acrylonitrile	<4.9 J	µg/L
		Benzene	<0.13 J	µg/L
		Bromobenzene	<0.16 J	µg/L
		Bromodichloromethane	<0.20 J	µg/L
		Bromoform	<1.0 J	µg/L
		Bromomethane (Methyl bromide)	<1.5 J	µg/L
		Carbon disulfide	<0.37 J	µg/L
		Carbon tetrachloride	<0.20 J	µg/L
		Chlorobenzene	<0.14 J	µg/L
		Chlorobromomethane	<0.38 J	µg/L
		Chloroethane	<0.44 J	µg/L
		Chloroform (Trichloromethane)	<0.46 J	µg/L
		Chloromethane (Methyl chloride)	<1.1 J	µg/L
		cis-1,2-Dichloroethene	<0.20 J	µg/L
		cis-1,3-Dichloropropene	<0.12 J	µg/L
		Cymene (p-Isopropyltoluene)	<0.14 J	µg/L
		Dibromochloromethane	<0.13 J	µg/L
		Dibromomethane	<0.50 J	µg/L
		Dichlorodifluoromethane (CFC-12)	<0.31 J	µg/L
		Dichlorofluoromethane	<0.38 J	µg/L
		Diisopropyl ether	<0.12 J	µg/L
		Ethylbenzene	<0.14 J	µg/L
		Hexachlorobutadiene	<0.48 J	µg/L
		Isopropyl benzene	<0.14 J	µg/L
		m&p-Xylenes	<0.24 J	µg/L
		Methyl tert butyl ether (MTBE)	<0.14 J	µg/L
Methylene chloride	<1.2 J	µg/L		
N-Butylbenzene	<0.13 J	µg/L		
N-Propylbenzene	<0.12 J	µg/L		
Naphthalene	<0.42 J	µg/L		
o-Xylene	<0.11 J	µg/L		
Styrene	<0.14 J	µg/L		
tert-Amyl methyl ether	<0.12 J	µg/L		
tert-Butyl alcohol	<2.2 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW5D-GW-101017	tert-Butyl ethyl ether	<0.13 J	µg/L
		tert-Butylbenzene	<0.15 J	µg/L
		Tetrachloroethene	<0.16 J	µg/L
		Tetrahydrofuran	<4.3 J	µg/L
		Toluene	<0.17 J	µg/L
		trans-1,2-Dichloroethene	<0.21 J	µg/L
		trans-1,3-Dichloropropene	<0.14 J	µg/L
		trans-1,4-Dichloro-2-butene	<2.8 J	µg/L
		Trichloroethene	<0.18 J	µg/L
		Trichlorofluoromethane (CFC-11)	<0.13 J	µg/L
		Trifluorotrchloroethane (CFC-113)	<0.28 J	µg/L
		Vinyl acetate	<1.5 J	µg/L
		Vinyl chloride	<0.096 J	µg/L
		Xylenes (total)	<0.24 J	µg/L
		MW1D-GW-101017	1,1,1,2-Tetrachloroethane	<0.14 J
	1,1,1-Trichloroethane		<0.15 J	µg/L
	1,1,2,2-Tetrachloroethane		<0.19 J	µg/L
	1,1,2-Trichloroethane		<0.22 J	µg/L
	1,1-Dichloroethane		<0.14 J	µg/L
	1,1-Dichloroethene		<0.18 J	µg/L
1,1-Dichloropropene	<0.18 J		µg/L	
1,2,3-Trichlorobenzene	<0.14 J		µg/L	
1,2,3-Trichloropropane	<0.66 J		µg/L	
1,2,4-Trichlorobenzene	<0.18 J		µg/L	
1,2,4-Trimethylbenzene	<0.098 J		µg/L	
1,2-Dibromo-3-chloropropane (DBCP)	<1.0 J		µg/L	
1,2-Dibromoethane (Ethylene dibromide)	<0.17 J		µg/L	
1,2-Dichlorobenzene	<0.21 J		µg/L	
1,2-Dichloroethane	<0.15 J		µg/L	
1,2-Dichloroethene (total)	<0.41 J	µg/L		
1,2-Dichloropropane	<0.62 J	µg/L		
1,3,5-Trimethylbenzene	<0.18 J	µg/L		
1,3-Dichlorobenzene	<0.16 J	µg/L		
1,3-Dichloropropane	<0.13 J	µg/L		
1,4-Dichlorobenzene	<0.10 J	µg/L		
1,4-Dioxane	<22.6 J	µg/L		
2,2,4-Trimethylpentane	<1.3 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW1D-GW-101017	2,2-Dichloropropane	<0.40 J	µg/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<2.4 J	µg/L
		2-Chlorotoluene	<0.20 J	µg/L
		2-Hexanone	<2.5 J	µg/L
		2-Phenylbutane (sec-Butylbenzene)	<0.12 J	µg/L
		4-Chlorotoluene	<0.13 J	µg/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.55 J	µg/L
		Acetone	30.9 J	µg/L
		Acrolein	<4.8 J	µg/L
		Acrylonitrile	<4.9 J	µg/L
		Benzene	<0.13 J	µg/L
		Bromobenzene	<0.16 J	µg/L
		Bromodichloromethane	<0.20 J	µg/L
		Bromoform	<1.0 J	µg/L
		Bromomethane (Methyl bromide)	<1.5 J	µg/L
		Carbon disulfide	<0.37 J	µg/L
		Carbon tetrachloride	<0.20 J	µg/L
		Chlorobenzene	<0.14 J	µg/L
		Chlorobromomethane	<0.38 J	µg/L
		Chloroethane	<0.44 J	µg/L
		Chloroform (Trichloromethane)	<0.46 J	µg/L
		Chloromethane (Methyl chloride)	<1.1 J	µg/L
		cis-1,2-Dichloroethene	<0.20 J	µg/L
		cis-1,3-Dichloropropene	<0.12 J	µg/L
		Cymene (p-Isopropyltoluene)	<0.14 J	µg/L
		Dibromochloromethane	<0.13 J	µg/L
		Dibromomethane	<0.50 J	µg/L
		Dichlorodifluoromethane (CFC-12)	<0.31 J	µg/L
		Dichlorofluoromethane	<0.38 J	µg/L
		Diisopropyl ether	<0.12 J	µg/L
		Ethylbenzene	<0.14 J	µg/L
		Hexachlorobutadiene	<0.48 J	µg/L
Isopropyl benzene	<0.14 J	µg/L		
m&p-Xylenes	<0.24 J	µg/L		
Methyl tert butyl ether (MTBE)	<0.14 J	µg/L		
Methylene chloride	<1.2 J	µg/L		
N-Butylbenzene	<0.13 J	µg/L		
N-Propylbenzene	<0.12 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW1D-GW-101017	Naphthalene	<0.42 J	µg/L
		o-Xylene	<0.11 J	µg/L
		Styrene	<0.14 J	µg/L
		tert-Amyl methyl ether	<0.12 J	µg/L
		tert-Butyl alcohol	<2.2 J	µg/L
		tert-Butyl ethyl ether	<0.13 J	µg/L
		tert-Butylbenzene	<0.15 J	µg/L
		Tetrachloroethene	<0.16 J	µg/L
		Tetrahydrofuran	<4.3 J	µg/L
		Toluene	<0.17 J	µg/L
		trans-1,2-Dichloroethene	<0.21 J	µg/L
		trans-1,3-Dichloropropene	<0.14 J	µg/L
		trans-1,4-Dichloro-2-butene	<2.8 J	µg/L
		Trichloroethene	<0.18 J	µg/L
		Trichlorofluoromethane (CFC-11)	<0.13 J	µg/L
		Trifluorotrchloroethane (CFC-113)	<0.28 J	µg/L
		Vinyl acetate	<1.5 J	µg/L
		Vinyl chloride	<0.096 J	µg/L
		Xylenes (total)	<0.24 J	µg/L
			MW10S-GW-101217	1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane	<0.15 J			µg/L
1,1,2,2-Tetrachloroethane	<0.19 J			µg/L
1,1,2-Trichloroethane	<0.22 J			µg/L
1,1-Dichloroethane	<0.14 J			µg/L
1,1-Dichloroethene	<0.18 J			µg/L
1,1-Dichloropropene	<0.18 J			µg/L
1,2,3-Trichlorobenzene	<0.14 J			µg/L
1,2,3-Trichloropropane	<0.66 J			µg/L
1,2,4-Trichlorobenzene	<0.18 J			µg/L
1,2,4-Trimethylbenzene	<0.098 J			µg/L
1,2-Dibromo-3-chloropropane (DBCP)	<1.0 J			µg/L
1,2-Dibromoethane (Ethylene dibromide)	<0.17 J			µg/L
1,2-Dichlorobenzene	<0.21 J			µg/L
1,2-Dichloroethane	<0.15 J			µg/L
1,2-Dichloroethene (total)	<0.41 J			µg/L
1,2-Dichloropropane	<0.62 J			µg/L
1,3,5-Trimethylbenzene	<0.18 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW10S-GW-101217	1,3-Dichlorobenzene	<0.16 J	µg/L
		1,3-Dichloropropane	<0.13 J	µg/L
		1,4-Dichlorobenzene	<0.10 J	µg/L
		1,4-Dioxane	<22.6 J	µg/L
		2,2,4-Trimethylpentane	<1.3 J	µg/L
		2,2-Dichloropropane	<0.40 J	µg/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<2.4 J	µg/L
		2-Chlorotoluene	<0.20 J	µg/L
		2-Hexanone	<2.5 J	µg/L
		2-Phenylbutane (sec-Butylbenzene)	<0.12 J	µg/L
		4-Chlorotoluene	<0.13 J	µg/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.55 J	µg/L
		Acetone	29.5 J	µg/L
		Acrolein	<4.8 J	µg/L
		Acrylonitrile	<4.9 J	µg/L
		Benzene	<0.13 J	µg/L
		Bromobenzene	<0.16 J	µg/L
		Bromodichloromethane	<0.20 J	µg/L
		Bromoform	<1.0 J	µg/L
		Bromomethane (Methyl bromide)	<1.5 J	µg/L
		Carbon disulfide	<0.37 J	µg/L
		Carbon tetrachloride	1.9 J	µg/L
		Chlorobenzene	<0.14 J	µg/L
		Chlorobromomethane	<0.38 J	µg/L
		Chloroethane	<0.44 J	µg/L
		Chloroform (Trichloromethane)	<0.46 J	µg/L
		Chloromethane (Methyl chloride)	<1.1 J	µg/L
		cis-1,2-Dichloroethene	<0.20 J	µg/L
		cis-1,3-Dichloropropene	<0.12 J	µg/L
		Cymene (p-Isopropyltoluene)	<0.14 J	µg/L
		Dibromochloromethane	<0.13 J	µg/L
		Dibromomethane	<0.50 J	µg/L
Dichlorodifluoromethane (CFC-12)	<0.31 J	µg/L		
Dichlorofluoromethane	<0.38 J	µg/L		
Diisopropyl ether	<0.12 J	µg/L		
Ethylbenzene	<0.14 J	µg/L		
Hexachlorobutadiene	<0.48 J	µg/L		
Isopropyl benzene	<0.14 J	µg/L		

Table 5
Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW10S-GW-101217	m&p-Xylenes	<0.24 J	µg/L
		Methyl tert butyl ether (MTBE)	<0.14 J	µg/L
		Methylene chloride	<1.2 J	µg/L
		N-Butylbenzene	<0.13 J	µg/L
		N-Propylbenzene	<0.12 J	µg/L
		Naphthalene	<0.42 J	µg/L
		o-Xylene	<0.11 J	µg/L
		Styrene	<0.14 J	µg/L
		tert-Amyl methyl ether	<0.12 J	µg/L
		tert-Butyl alcohol	<2.2 J	µg/L
		tert-Butyl ethyl ether	<0.13 J	µg/L
		tert-Butylbenzene	<0.15 J	µg/L
		Tetrachloroethene	<0.16 J	µg/L
		Tetrahydrofuran	<4.3 J	µg/L
		Toluene	<0.17 J	µg/L
		trans-1,2-Dichloroethene	<0.21 J	µg/L
		trans-1,3-Dichloropropene	<0.14 J	µg/L
		trans-1,4-Dichloro-2-butene	<2.8 J	µg/L
		Trichloroethene	<0.18 J	µg/L
		Trichlorofluoromethane (CFC-11)	<0.13 J	µg/L
Trifluorotrchloroethane (CFC-113)	<0.28 J	µg/L		
Vinyl acetate	<1.5 J	µg/L		
Vinyl chloride	<0.096 J	µg/L		
Xylenes (total)	<0.24 J	µg/L		

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units	
Dissolved Gases	Methane	09/19/2017	1.5 J	Lashaw-DOM-GW-091217	1.3 J	<1.3 J	µg/L	
				Silva-GW-091217	1.8 J	<1.8 J	µg/L	
				Lang-GW-091217	2.6 J	<2.6 J	µg/L	
				Stark-GW-091217	1.2 J	<1.2 J	µg/L	
				Thorson-GW-091207	1.7 J	<1.7 J	µg/L	
				Asher-GW-091217	1.5 J	<1.5 J	µg/L	
		09/24/2017	1.6 J	Reed-GW-091317	1.8 J	<1.8 J	µg/L	
				MW-14D-GW-091417	2.9 J	<2.9 J	µg/L	
				MW-3D-GW-091417	1.6 J	<1.6 J	µg/L	
		09/25/2017	1.6 J	Marlow-GW-091917	FD01-GW-091917	1.5 J	<1.5 J	µg/L
					FD02-GW-091917	1.6 J	<1.6 J	µg/L
		10/08/2017	1.6 J	MW21D-GW-100217	2.5 J	<2.5 J	µg/L	
		10/09/2017	1.5 J	MW18D-GW-100217	2.7 J	<2.7 J	µg/L	
				MW15D-GW-100217	3.1 J	<3.1 J	µg/L	
				MW6D-GW-100517	3.0 J	<3.0 J	µg/L	
				MW4D-GW-100517	1.8 J	<1.8 J	µg/L	

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases		10/10/2017	1.5 J	MW20D-GW-100517	2.0 J	<2.0 J	µg/L
				MW19D-GW-100517	1.7 J	<1.7 J	µg/L
				FD-GW-100517	2.2 J	<2.2 J	µg/L
		10/17/2017	1.5 J	MW5D-GW-101017	2.6 J	<2.6 J	µg/L
				MW1D-GW-101017	5.2 J	<5.2 J	µg/L
				MW17D-GW-101017	2.1 J	<2.1 J	µg/L
				MW7S-GW-101017	1.8 J	<1.8 J	µg/L
			1.6 J	WS5-GW-101117	2.3 J	<2.3 J	µg/L
		10/18/2017	1.6 J	MW9S-GW-101217	2.0 J	<2.0 J	µg/L
				MW10S-GW-101217	1.4 J	<1.4 J	µg/L
				MW11S-GW-101217	1.2 J	<1.2 J	µg/L
				MW6U-GW-101217	1.8 J	<1.8 J	µg/L
				MW6S-GW-101217	1.2 J	<1.2 J	µg/L
				MW13S-GW-101217	1.3 J	<1.3 J	µg/L
MW12S-GW-101217	2.9 J			<2.9 J	µg/L		
MW9U-GW-101217	1.2 J	<1.2 J	µg/L				
Metals	Manganese (dissolved)	10/05/2017	0.48 J	MW16D-GW-100217	0.79 J	<0.79 J	µg/L
				MW15D-GW-100217	1.4 J	<1.4 J	µg/L

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Aluminum (dissolved)	10/17/2017	12.9 J	MW1D-GW-101017	37.3 J	<37.3 J	µg/L
				MW17D-GW-101017	23.9 J	<23.9 J	µg/L
				MW7S-GW-101017	73.2 J	<73.2 J	µg/L
				WS5-GW-101117	15.5 J	<15.5 J	µg/L
	Thallium (dissolved)	10/26/2017	7.9 J	W20-GW-101617	7.9 J	<7.9 J	µg/L
				W26-GW-101617	9.6 J	<9.6 J	µg/L
				Marlow2-GW-101617	8.0 J	<8.0 J	µg/L
General Chemistry	Nitrate (as N)	10/12/2017	0.041 J	MW1D-GW-101017	0.097 J	<0.097 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 7

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	Acetone	10/13/2017	136	66-126	MW21D-GW-100217	28.6 J	µg/L
					MW16D-GW-100217	29.4 J	µg/L
					MW18D-GW-100217	58.0 J	µg/L
					MW15D-GW-100217	22.4 J	µg/L
					MW6D-GW-100517	28.4 J	µg/L
					MW4D-GW-100517	48.3 J	µg/L
					MW9D-GW-100517	28.2 J	µg/L
		10/26/2017	132	66-126	W20-GW-101617	31.2 J	µg/L
					W26-GW-101617	12.4 J	µg/L
					Marlow2-GW-101617	47.5 J	µg/L

Notes:

LCS - Laboratory Control Sample

J - Estimated concentration

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	Lashaw-AG-GW-091217	Sulfide	64	--	--	75-125	--	Lashaw-AG-GW-091217	<0.0050 J	mg/L
								Lashaw-DOM-GW-091217	<0.0050 J	mg/L
								Silva-GW-091217	<0.0050 J	mg/L
								Lang-GW-091217	<0.0050 J	mg/L
								Stark-GW-091217	<0.0050 J	mg/L
								Thorson-GW-091207	0.070 J	mg/L
								Asher-GW-091217	<0.0050 J	mg/L
								Reed-GW-091317	<0.0050 J	mg/L
	MW1S-GW-101217	Sulfide	0	--	--	75-125	--	MW1S-GW-101217	R	
								MW9S-GW-101217	R	
								MW8S-GW-101217	R	
								MW10S-GW-101217	0.0071 J	mg/L
								MW11S-GW-101217	R	
								MW6U-GW-101217	R	
								MW6S-GW-101217	R	
								MW13S-GW-101217	R	
	W20-GW-101617	Sulfide	69	--	--	75-125	--	W20-GW-101617	3.0 J	mg/L
								W26-GW-101617	<0.0050 J	mg/L
								Marlow2-GW-101617	<0.0050 J	mg/L

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery	(percent)	% Recovery	RPD				
General Chemistry	Marlow-GW-091917	Chloride	82	81	0	90-110	20	Marlow-GW-091917	14.7 J	mg/L	
								Randall-GW-091917	5.4 J	mg/L	
									FD01-GW-091917	5.4 J	mg/L
									FD02-GW-091917	14.7 J	mg/L
			Sulfate	83	82	0	90-110	20	Marlow-GW-091917	13.2 J	mg/L
								Randall-GW-091917	9.2 J	mg/L	
									FD01-GW-091917	9.6 J	mg/L
									FD02-GW-091917	13.2 J	mg/L
		Randall-GW-091917	Nitrate (as N)	67	77	3	90-110	20	Marlow-GW-091917	4.2 J	mg/L
								Randall-GW-091917	2.5 J	mg/L	
									FD01-GW-091917	2.5 J	mg/L
									FD02-GW-091917	4.2 J	mg/L
		MW21D-GW-100217	Sulfate	87	88	0	90-110	20	MW21D-GW-100217	9.8 J	mg/L
								MW16D-GW-100217	18.0 J	mg/L	
									MW18D-GW-100217	8.4 J	mg/L
									MW15D-GW-100217	5.9 J	mg/L
	MW20D-GW-100517	Nitrate (as N)	86	85	0	90-110	20	MW20D-GW-100517	1.1 J	mg/L	
								MW19D-GW-100517	4.4 J	mg/L	
								FD-GW-100517	4.5 J	mg/L	

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 September - October 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW7S-GW-101017	Chloride	86	86	0	90-110	20	MW1D-GW-101017	1.7 J	mg/L
			MW17D-GW-101017	35.7 J	mg/L					
			MW7S-GW-101017	10.3 J	mg/L					
			WS5-GW-101117	3.0 J	mg/L					
		Sulfate	75	74	0	90-110	20	MW1D-GW-101017	3.6 J	mg/L
			MW17D-GW-101017	79.7 J	mg/L					
			MW7S-GW-101017	22.1 J	mg/L					
			WS5-GW-101117	5.5 J	mg/L					

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 9

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2017

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	09/12/2017	Acetone	15.9 J	MW3D-GW-091417	12.5 J	<12.5 J	µg/L
		tert-Butyl alcohol	7.5 J	MW2D-GW-091417	2.3 J	<2.3 J	µg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

January 24, 2018

To: David Hodson Ref. No.: 058323-1497

From: Jeffrey Cloud/eew/392-NF Tel: 206-914-3141

cc: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10405356 and 10405357
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
September 2017**

1. Introduction

This document details a reduced validation of analytical results for air samples collected in support of the Soil Vapor and Air Sampling at the Cenex Harvest Lease Site in Freeman, Washington during September 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 2 and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008 subsequently referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criterion is presented in the method. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy.

5. Field QA/QC Samples

The field QA/QC consisted of one field duplicate sample set.

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

6. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3.



7. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable without qualification.

Table 1

**Sample Collection and Analysis Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2017**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>	
					VOCs	Comments
Marlow-CSV-092717	Marlow Crawl Space	Air	09/27/2017	10:37	X	
Marlow-CSV-092717 Cert #0849	Marlow Crawl Space	Air	09/27/2017	10:37	X	
FD-CSV-092717	Marlow Crawl Space	Air	09/27/2017	10:37	X	FD (Marlow-CSV-092717)
FD-CSV-092717 Cert #2115	Marlow Crawl Space	Air	09/27/2017	10:37	X	
Randall-CSV-092717	Randall Crawl Space	Air	09/27/2017	12:02	X	
Randall-CSV-092717 Cert #2822	Randall Crawl Space	Air	09/27/2017	12:02	X	

Notes:

- FD - Field Duplicate sample of sample in parenthesis
VOCs - Volatile Organic Compounds

Table 2

**Analytical Methods
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2017**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	TO-15 ⁽¹⁾	Air

Notes:

- ⁽¹⁾ - EPA Method TO-15 - "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999

Table 3
Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2017

Location ID:	Marlow Crawl Space	Marlow Crawl Space	Marlow Crawl Space
Sample Name:	Marlow-CSV-092717	Marlow-CSV-092717 Cert #0849	FD-CSV-092717
Sample Date:	09/27/2017	09/27/2017	09/27/2017
			Duplicate

Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	0.80	<0.0032	0.66
Chloroform (Trichloromethane)	µg/m3	0.088	<0.0037	0.097

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2017**

Location ID:	Marlow Crawl Space	Randall Crawl Space	Randall Crawl Space
Sample Name:	FD-CSV-092717 Cert #2115	Randall-CSV-092717	Randall-CSV-092717 Cert #2822
Sample Date:	09/27/2017	09/27/2017	09/27/2017
	Duplicate		

Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	<0.0032	0.90	<0.0032
Chloroform (Trichloromethane)	µg/m3	<0.0037	0.11	<0.0037

Notes:

< - Not detected at the associated reporting limit



Memorandum

January 24, 2018

To: David Hodson Ref. No.: 058323-1497

From: Jeffrey Cloud/eew/393-NF Tel: 206-914-3141

cc: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10415471
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2017**

1. Introduction

This document details a reduced validation of analytical results for air samples collected in support of the Soil Vapor and Air Sampling at the Cenex Harvest Lease Site in Freeman, Washington during December 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data and laboratory control samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 2 and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008 subsequently referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criterion is presented in the method. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy.

5. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3.

6. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable without qualification.

Table 1

**Sample Collection and Analysis Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017**

Analysis/Parameters

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	VOCs
SSV-2-121917	Elementary School Gym Supply Closet	Air	12/19/2017	16:56	X
SSV-1-121917	High School Basement Utility Room	Air	12/19/2017	12:34	X
SSV-3-121917	Middle School Basement Storage Closet	Air	12/19/2017	18:31	X

Notes:

VOCs - Volatile Organic Compounds

Table 2

Analytical Methods
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	TO-15 ⁽¹⁾	Air

Notes:

- ⁽¹⁾ - EPA Method TO-15 - "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017**

Location ID:	Elementary School Gym Supply Closet	High School Basement Utility Room	Middle School Basement Storage Closet
Sample Name:	SSV-2-121917	SSV-1-121917	SSV-3-121917
Sample Date:	12/19/2017	12/19/2017	12/19/2017

Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	0.23	0.29	1.8
Chloroform (Trichloromethane)	µg/m3	0.12	0.12	1.8




Memorandum

February 16, 2018

To: David Hodson

Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/400-NF

Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus,
Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10414217, 10414223, 10414407, 10414412, 10414415, 10414592, 10414596, 10414755, 10414757, 10415136, 10415137, 10415446, 10415455, 10415459, 10415465, 10416296, 10416300, 10416448, 10416449, 10416719, 10416721, 10416722, 10417529, 10417533, 10417794 and 10417799
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2017 – January 2018**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during December 2017 and January 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with a few exceptions. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 6).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 7).

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 7).

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.



Organic Analyses

The MS samples were spiked with the analytes of interest. All percent recoveries were within the associated control limits, demonstrating acceptable analytical accuracy with the exception of two high recoveries. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where a low recovery was found the associated sample results were qualified as estimated due to the implied low bias. Where extremely low recoveries were found the associated sample detection was qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated. A summary of the qualifications and exceptions is presented in Table 7.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of fourteen trip blank samples and five field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, fourteen trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of chloroform present at a low concentration. The associated sample results were either non-detect or significantly greater than the blank and were not impacted. No qualification of the data was deemed necessary.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, five field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.



All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with a few exceptions. The associated sample results and their duplicates were qualified as estimated due to variability (see Table 8).

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Asher-GW-010518	Asher Well	Water	01/05/2018	11:30	X	X	X	X	X	X	X	X	X	X		
FD03	Asher Well	Water	01/05/2018	--	X	X	X	X	X	X	X	X	X	X		FD (ASHER-GW-010518)
ATWOODH-GW-010418	Atwood House	Water	01/04/2018	14:15	X	X	X	X	X	X				X		
AtwoodH-GW-010518	Atwood House	Water	01/05/2018	11:10									X	X		
ATWOODS-GW-010418	Atwood Shop	Water	01/04/2018	13:45	X	X	X	X	X	X					X	
AtwoodS-GW-010518	Atwood Shop	Water	01/05/2018	11:00									X	X		
Lang-GW-010518	Lang Well	Water	01/05/2018	14:00	X	X	X	X	X	X	X	X	X	X		
FD05	Lang Well	Water	01/05/2018	--	X	X	X	X	X	X	X	X	X	X		FD (LANG-GW-010518) - MS/MSD
Lashaw-GW-010918	Lashaw Well (Domestic)	Water	01/09/2018	08:45	X	X	X	X	X	X	X	X	X	X		DUP - MS - MS/MSD
MarlowNo.2-GW-011618	Out-of-Use Marlow Well (No. 2)	Water	01/16/2018	09:30	X	X	X	X	X	X	X	X	X	X		
Marlow-GW-121217	Marlow Well Influent	Water	12/12/2017	14:00	X	X	X	X	X	X	X	X	X	X		DUP - MS/MSD
FD2-GW-121217	Marlow Well Influent	Water	12/12/2017	--	X	X	X	X	X	X	X	X	X	X		FD (MARLOW-GW-121217)
MW1D-GW-122117	MW-1D	Water	12/21/2017	12:30	X	X	X	X	X	X	X	X	X	X		
MW1S-GW-011518	MW-1S	Water	01/15/2018	13:00				X	X					X		
MW2D-GW-011518	MW-2D	Water	01/15/2018	14:15	X	X	X	X	X	X	X	X	X	X		
MW3D-GW-011518	MW-3D	Water	01/15/2018	12:40	X	X	X	X	X	X	X	X	X	X		MS/MSD
MW-4d-GW-121517	MW-4D	Water	12/15/2017	13:25	X	X	X	X	X	X	X	X	X	X		MS/MSD
MW5d-GW-121917	MW-5D	Water	12/19/2017	13:05	X	X	X	X	X	X	X	X	X	X		DUP - MS - MS/MSD
MW6d-GW-122017	MW-6D	Water	12/20/2017	10:00	X	X	X	X	X	X	X	X	X	X		DUP

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW-6s	MW-6S	Water	12/14/2017	08:15	X	X	X	X	X	X	X	X	X	X	X	MS - MS/MSD
MW6U-GW-011518	MW-6U	Water	01/15/2018	15:40	X	X	X	X	X	X	X	X	X	X	X	
MW-7s	MW-7S	Water	12/14/2017	10:20	X	X	X	X	X	X	X	X	X	X	X	
MW-8s	MW-8S	Water	12/14/2017	11:20	X	X	X	X	X	X	X	X	X	X	DUP	
MW9d-GW-122017	MW-9D	Water	12/20/2017	13:25	X	X	X	X	X	X	X	X	X	X	X	
MW-9s	MW-9S	Water	12/14/2017	11:45	X	X	X	X	X	X	X	X	X	X	X	
MW9U-GW-011518	MW-9U	Water	01/15/2018	10:50	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD	
MW-10s	MW-10S	Water	12/14/2017	09:50	X	X	X	X	X	X	X	X	X	X	X	
MW-11s	MW-11S	Water	12/14/2017	09:20	X	X	X	X	X	X	X	X	X	X	X	
MW-12s	MW-12S	Water	12/14/2017	09:00	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD	
MW13S-GW-121117	MW-13S	Water	12/11/2017	11:25	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD	
MW-14d-GW-121517	MW-14D	Water	12/15/2017	10:25	X	X	X	X	X	X	X	X	X	X	MS/MSD	
MW15d-GW-122017	MW-15D	Water	12/20/2017	11:35	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD	
MW16d-GW-122017	MW-16D	Water	12/20/2017	15:10	X	X	X	X	X	X	X	X	X	X	MS/MSD	
MW17D-GW-122117	MW-17D	Water	12/21/2017	09:15	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD	
MW-18d-GW-121517	MW-18D	Water	12/15/2017	11:35	X	X	X	X	X	X	X	X	X	X	X	
MW19D-GW-122117	MW-19D	Water	12/21/2017	10:15	X	X	X	X	X	X	X	X	X	X	MS/MSD	
MW-20d	MW-20D	Water	12/14/2017	15:00	X	X	X	X	X	X	X	X	X	X	X	
MW-21d	MW-21D	Water	12/14/2017	13:35	X	X	X	X	X	X	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW22S-GW-121217	MW-22S	Water	12/12/2017	11:00	X	X	X	X	X	X	X	X	X	X		
Randall-GW-121217	Randall Well Influent	Water	12/12/2017	10:40	X	X	X	X	X	X	X	X	X	X		DUP - MS/MSD
FD1-GW-121217	Randall Well Influent	Water	12/12/2017	--	X	X	X			X	X	X	X	X		FD (RANDALL-GW-121217)
Reed-GW-010918	Reed Well (W30)	Water	01/09/2018	09:45	X	X	X	X	X	X	X	X	X	X		MS - MS/MSD
Silva-GW-010518	Silva Well	Water	01/05/2018	13:00	X	X	X	X	X	X	X	X	X	X		
FD04	Silva Well	Water	01/05/2018	--	X	X	X	X	X	X	X	X	X	X		FD (SILVA-GW-010518)
STARK-GW-010418	Stark Well (W15)	Water	01/04/2018	12:55	X	X	X	X	X	X	X			X		DUP - MS
Stark-GW-010518	Stark Well (W15)	Water	01/05/2018	09:20									X	X		MS/MSD
SG01-121217	Stream Gauge 1	Water	12/12/2017	13:50											X	
SG02-121217	Stream Gauge 2	Water	12/12/2017	14:00											X	
Thorson-GW-010518	Thorson Well	Water	01/05/2018	10:00	X	X	X	X	X	X	X	X	X	X		DUP - MS - MS/MSD
MARLOWW20-GW-121117	Out-of-Use Marlow Well (W20)	Water	12/11/2017	14:40	X	X	X	X	X	X	X	X	X	X		
W26-GW-011618	Out-of-Use Freeman School Well (W26)	Water	01/16/2018	08:30	X	X	X	X	X	X	X	X	X	X		
WS5-GW-011918	WS-5	Water	01/19/2018	09:05	X	X	X	X	X	X	X	X	X	X		MS/MSD
TRIP BLANK	--	Water	12/12/2017	--											X	Trip Blank
Trip Blank-121217	--	Water	12/12/2017	--											X	Trip Blank
Trip Blank-121217	--	Water	12/12/2017	--											X	Trip Blank
Trip Blank	--	Water	12/14/2017	--											X	Trip Blank
Trip Blank	--	Water	12/15/2017	--											X	Trip Blank

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters									Comments				
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury		VOCs			
Trip Blank	--	Water	12/19/2017	--														Trip Blank
Trip Blank	--	Water	12/20/2017	--														Trip Blank
Trip Blank	--	Water	12/21/2017	--														Trip Blank
Trip Blank	--	Water	01/05/2018	--														Trip Blank
Trip Blank 2	--	Water	01/05/2018	--														Trip Blank
Trip Blank	--	Water	01/09/2018	--														Trip Blank
Trip Blank	--	Water	01/09/2018	--														Trip Blank
Trip Blank	--	Water	01/15/2018	--														Trip Blank
Trip Blank	--	Water	01/19/2018	--														Trip Blank

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010C ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID: Sample Name: Sample Date:	Asher Well Asher-GW-010518 01/05/2018	Asher Well FD03 01/05/2018 Duplicate	Atwood House ATWOODH-GW-010418 01/04/2018	Atwood House AtwoodH-GW-010518 01/05/2018	Atwood Shop ATWOODS-GW-010418 01/04/2018
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	--	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	--	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	--	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	--	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	--	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	--	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	--	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	--	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	--	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	--	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	--	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	--	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	--	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	--	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	--	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	--	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	--	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	--	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	--	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	--	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	--	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	--	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	--	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	--	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	--	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	--	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	--	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	--	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	--	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	--	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	--	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	--	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	Asher Well	Asher Well	Atwood House	Atwood House	Atwood Shop	
Sample Name:	Asher-GW-010518	FD03	ATWOODH-GW-010418	AtwoodH-GW-010518	ATWOODS-GW-010418	
Sample Date:	01/05/2018	01/05/2018 Duplicate	01/04/2018	01/05/2018	01/04/2018	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	--	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	--	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	--	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	--	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	--	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	--	<1.5
Carbon disulfide	µg/L	<0.37 J	<0.37	<0.37 J	--	<0.37 J
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	--	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	--	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	--	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	--	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	--	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	--	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	--	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	--	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	--	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	--	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	--	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	--	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	--	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	--	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	--	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	--	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	--	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	--	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	--	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	--	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	--	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	--	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	--	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	--	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	--	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Asher Well Asher-GW-010518 01/05/2018	Asher Well FD03 01/05/2018 Duplicate	Atwood House ATWOODH-GW-010418 01/04/2018	Atwood House AtwoodH-GW-010518 01/05/2018	Atwood Shop ATWOODS-GW-010418 01/04/2018	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	--	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	--	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	--	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	--	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	--	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	--	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	--	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	--	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	--	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	--	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	--	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	--	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	--	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	--	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	--	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	--	<0.24
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	--	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	--	<0.68
Methane	µg/L	<8.7	<1.9 J	<3.5	--	<3.7
Metals						
Aluminum (dissolved)	µg/L	<8.6	<8.6	--	<8.6	--
Antimony (dissolved)	µg/L	<3.1	<3.1	--	<3.1	--
Arsenic (dissolved)	µg/L	<5.2	<5.2	--	<5.2	--
Barium (dissolved)	µg/L	69.1	70.5	--	34.2	--
Beryllium (dissolved)	µg/L	<0.11	<0.11	--	<0.11	--
Cadmium (dissolved)	µg/L	<0.46	<0.46	--	<0.46	--
Calcium (dissolved)	µg/L	57300	58500	--	25800	--
Chromium (dissolved)	µg/L	<0.50	0.87 J	--	<0.50	--
Cobalt (dissolved)	µg/L	<1.1	<1.1	--	<1.1	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	Asher Well	Asher Well	Atwood House	Atwood House	Atwood Shop	
Sample Name:	Asher-GW-010518	FD03	ATWOODH-GW-010418	AtwoodH-GW-010518	ATWOODS-GW-010418	
Sample Date:	01/05/2018	01/05/2018 Duplicate	01/04/2018	01/05/2018	01/04/2018	
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	62.9	61.0	--	35.7	--
Iron (dissolved)	µg/L	<16.7	<16.7	--	<16.7	--
Lead (dissolved)	µg/L	<3.0	<3.0	--	<3.0	--
Magnesium (dissolved)	µg/L	16900	17300	--	11100	--
Manganese (dissolved)	µg/L	<0.38	<0.38	--	5.5	--
Mercury (dissolved)	µg/L	<0.062	<0.062	--	<0.062	--
Nickel (dissolved)	µg/L	<1.1	<1.1	--	3.6 J	--
Potassium (dissolved)	µg/L	1150 J	1160 J	--	3130	--
Selenium (dissolved)	µg/L	<6.4	<6.4	--	<6.4	--
Silver (dissolved)	µg/L	<0.27	<0.27	--	<0.27	--
Sodium (dissolved)	µg/L	18500	18800	--	13700	--
Thallium (dissolved)	µg/L	9.4 J	7.2 J	--	<4.8	--
Vanadium (dissolved)	µg/L	9.6 J	9.7 J	--	3.8 J	--
Zinc (dissolved)	µg/L	38.2	32.4	--	113	--
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	220	224	146	--	148
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	--	<15.8
Chloride	mg/L	7.3 J	1.8 J	1.4	--	1.4
Nitrate (as N)	mg/L	7.1 J	0.42 J	0.49 J	--	1.2 J
Nitrite/Nitrate	mg/L	7.4	5.9	0.54	--	1.3
Sulfate	mg/L	<0.27	<0.27	4.0 J	--	3.8 J
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	--	<0.0050
Total dissolved solids (TDS)	mg/L	359	353	196	--	207
Total organic carbon (TOC)	mg/L	0.84 J	0.92 J	0.35 J	--	0.34 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	Atwood Shop	Lang Well	Lang Well	Lashaw Well (Domestic)	Out-of-Use Marlow Well (No. 2)
	Sample Name:	AtwoodS-GW-010518	Lang-GW-010518	FD05	Lashaw-GW-010918	MarlowNo.2-GW-011618
	Sample Date:	01/05/2018	01/05/2018	01/05/2018 Duplicate	01/09/2018	01/16/2018
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	--	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	--	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	--	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	--	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	--	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	--	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	--	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	--	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	--	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	--	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	--	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	--	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	--	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	--	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	--	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	--	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	--	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	--	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	--	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	--	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	--	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	--	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	--	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	--	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	--	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	--	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	--	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	--	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	--	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	--	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	--	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	--	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Atwood Shop AtwoodS-GW-010518 01/05/2018	Lang Well Lang-GW-010518 01/05/2018	Lang Well FD05 01/05/2018 Duplicate	Lashaw Well (Domestic) Lashaw-GW-010918 01/09/2018	Out-of-Use Marlow Well (No. 2) MarlowNo.2-GW-011618 01/16/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	--	<4.9	<4.9	<4.9	<4.9
Benzene	--	<0.13	<0.13	<0.13	<0.13
Bromobenzene	--	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	--	<0.20	<0.20	<0.20	<0.20
Bromoform	--	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	--	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	--	<0.37 J	<0.37	<0.37	<0.37
Carbon tetrachloride	--	<0.20	<0.20	0.89	8.6
Chlorobenzene	--	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	--	<0.38	<0.38	<0.38	<0.38
Chloroethane	--	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	--	<0.46	<0.46	<0.46	3.9
Chloromethane (Methyl chloride)	--	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	--	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	--	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	--	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	--	<0.13	<0.13	<0.13	<0.13
Dibromomethane	--	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	--	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	--	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	--	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	--	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	--	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	--	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	--	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	--	<0.14	<0.14	<0.14	<0.14
Methylene chloride	--	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	--	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	--	<0.12	<0.12	<0.12	<0.12
Naphthalene	--	<0.42	<0.42	<0.42	<0.42
o-Xylene	--	<0.11	<0.11	<0.11	<0.11
Styrene	--	<0.14	<0.14	<0.14	<0.14

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Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Atwood Shop AtwoodS-GW-010518 01/05/2018	Lang Well Lang-GW-010518 01/05/2018	Lang Well FD05 01/05/2018 Duplicate	Lashaw Well (Domestic) Lashaw-GW-010918 01/09/2018	Out-of-Use Marlow Well (No. 2) MarlowNo.2-GW-011618 01/16/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	--	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	--	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	--	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	--	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	--	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	--	<4.3	<4.3	<4.3
Toluene	µg/L	--	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	--	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	--	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	--	<2.8	<2.8	<2.8
Trichloroethene	µg/L	--	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	--	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	--	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	--	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	--	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	--	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	--	<4.9	<4.9	<4.9
Ethene	µg/L	--	<0.68	<0.68	<0.68
Methane	µg/L	--	<4.2	<2.9 J	<2.1 J 153
Metals					
Aluminum (dissolved)	µg/L	<8.6	<8.6	10.4 J	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	26.6	16.1	16.1	8.8 J 20.2
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	31800	40600	40600	25400 54200
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1 1.9 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Atwood Shop AtwoodS-GW-010518 01/05/2018	Lang Well Lang-GW-010518 01/05/2018	Lang Well FD05 01/05/2018 Duplicate	Lashaw Well (Domestic) Lashaw-GW-010918 01/09/2018	Out-of-Use Marlow Well (No. 2) MarlowNo.2-GW-011618 01/16/2018	
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	1120	8.5 J	6.5 J	8.3 J	<0.83
Iron (dissolved)	µg/L	<16.7	20.8 J	40.8 J	<16.7	7560
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	10600	11700	11700	12800	16000
Manganese (dissolved)	µg/L	3.1 J	10.5	10.6	0.39 J	355
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	2.8 J	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1240 J	1150 J	1110 J	3670	849 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	12000	16500	16500	15000	17500
Thallium (dissolved)	µg/L	6.0 J	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	6.1 J	5.0 J	5.1 J	10.4 J	0.54 J
Zinc (dissolved)	µg/L	2080	55.0	37.0	119	16.4 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	--	195	191	148	223
Chemical oxygen demand (COD)	mg/L	--	<15.8	<15.8	19.0 J	<15.8
Chloride	mg/L	--	7.3 J	<0.14 J	1.7	2.2 J
Nitrate (as N)	mg/L	--	7.1 J	<0.0079 J	2.5	<0.0079 J
Nitrite/Nitrate	mg/L	--	0.47	0.47	2.0	<0.014 J
Sulfate	mg/L	--	<0.27	<0.27	5.9	2.6 J
Sulfide	mg/L	--	<0.0050	<0.0050	R	<0.0050 J
Total dissolved solids (TDS)	mg/L	--	238	237	204	253
Total organic carbon (TOC)	mg/L	--	<0.20	<0.20	0.37 J	1.3

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Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Marlow Well Influent Marlow-GW-121217 12/12/2017	Marlow Well Influent FD2-GW-121217 12/12/2017 Duplicate	MW-1D MW1D-GW-122117 12/21/2017	MW-1S MW1S-GW-011518 01/15/2018	MW-2D MW2D-GW-011518 01/15/2018
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14 J	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	Marlow Well Influent	Marlow Well Influent	MW-1D	MW-1S	MW-2D
Sample Name:	Marlow-GW-121217	FD2-GW-121217	MW1D-GW-122117	MW1S-GW-011518	MW2D-GW-011518
Sample Date:	12/12/2017	12/12/2017 Duplicate	12/21/2017	01/15/2018	01/15/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	0.13 J
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	0.66 J	0.71 J	<0.37	<0.37
Carbon tetrachloride	µg/L	134	139	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	9.4	8.3	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42 J	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14

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Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Marlow Well Influent Marlow-GW-121217 12/12/2017	Marlow Well Influent FD2-GW-121217 12/12/2017 Duplicate	MW-1D MW1D-GW-122117 12/21/2017	MW-1S MW1S-GW-011518 01/15/2018	MW-2D MW2D-GW-011518 01/15/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	0.22 J
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	--
Ethene	µg/L	<0.68	<0.68	<0.68	--
Methane	µg/L	<4.6 J	<2.9 J	<5.0 J	--
Metals					
Aluminum (dissolved)	µg/L	<8.6	<8.6	96.5 J	--
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	--
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	--
Barium (dissolved)	µg/L	29.1	29.9	66.9	--
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	--
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	--
Calcium (dissolved)	µg/L	45400	44900	47400	--
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	--
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Marlow Well Influent Marlow-GW-121217 12/12/2017	Marlow Well Influent FD2-GW-121217 12/12/2017 Duplicate	MW-1D MW1D-GW-122117 12/21/2017	MW-1S MW1S-GW-011518 01/15/2018	MW-2D MW2D-GW-011518 01/15/2018	
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	29.3 J	66.4 J	1.9 J	--	1.5 J
Iron (dissolved)	µg/L	<16.7	17.2 J	131	--	1760
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	--	<3.0
Magnesium (dissolved)	µg/L	12900	12800	11700	--	8330
Manganese (dissolved)	µg/L	<0.38	0.47 J	70.5	--	416
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	--	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	--	<1.1
Potassium (dissolved)	µg/L	1340 J	1320 J	1260 J	--	5590
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	--	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	--	<0.27
Sodium (dissolved)	µg/L	11900	11900	10500	--	21700
Thallium (dissolved)	µg/L	4.9 J	5.0 J	6.8 J	--	<4.8
Vanadium (dissolved)	µg/L	7.9 J	7.7 J	1.7 J	--	2.3 J
Zinc (dissolved)	µg/L	45.3 J	79.4 J	2.6 J	--	5.5 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	155	161	199	454	145
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	34.5 J	--	49.0 J
Chloride	mg/L	15.1 J	15.3 J	1.8 J	7.6 J	1.5 J
Nitrate (as N)	mg/L	4.0 J	4.1 J	0.12	0.053 J	<0.0079 J
Nitrite/Nitrate	mg/L	4.2	4.2	0.12	--	<0.0079 J
Sulfate	mg/L	13.4 J	13.6 J	3.7	20.1 J	5.7 J
Sulfide	mg/L	<0.0050	<0.0050	R	--	0.0055 J
Total dissolved solids (TDS)	mg/L	257	276	230	596	200
Total organic carbon (TOC)	mg/L	0.56 J	0.56 J	0.78 J	--	9.6

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
	Sample Name:	MW3D-GW-011518	MW-4d-GW-121517	MW5d-GW-121917	MW6d-GW-122017	MW-6s
	Sample Date:	01/15/2018	12/15/2017	12/19/2017	12/20/2017	12/14/2017
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14 J	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
Sample Name:	MW3D-GW-011518	MW-4d-GW-121517	MW5d-GW-121917	MW6d-GW-122017	MW-6s
Sample Date:	01/15/2018	12/15/2017	12/19/2017	12/20/2017	12/14/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	6.4	<0.20	2.2
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42 J
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
Sample Name:	MW3D-GW-011518	MW-4d-GW-121517	MW5d-GW-121917	MW6d-GW-122017	MW-6s
Sample Date:	01/15/2018	12/15/2017	12/19/2017	12/20/2017	12/14/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5 J	<1.5	<1.5 J
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<5.0 J	<3.4 J	<4.7 J	<3.6 J
Metals					
Aluminum (dissolved)	µg/L	<8.6	30.0 J	167 J	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	44.4	45.2	87.1	15.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	31500	36400	44800	32100
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S	
Sample Name:	MW3D-GW-011518	MW-4d-GW-121517	MW5d-GW-121917	MW6d-GW-122017	MW-6s	
Sample Date:	01/15/2018	12/15/2017	12/19/2017	12/20/2017	12/14/2017	
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	<0.83	0.85 J	0.98 J	<0.83	<0.83
Iron (dissolved)	µg/L	23.4 J	38.0 J	155	<16.7	84.1
Lead (dissolved)	µg/L	<3.0	<3.0	3.7 J	<3.0	<3.0
Magnesium (dissolved)	µg/L	9570	12300	13300	14500	9060
Manganese (dissolved)	µg/L	25.9	3.5 J	16.1	<0.38	2.0 J
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1300 J	2700	2210 J	6970	464 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	13700	18000	18400	18200	10900
Thallium (dissolved)	µg/L	<4.8	<4.8	7.4 J	<4.8	<4.8
Vanadium (dissolved)	µg/L	1.7 J	9.7 J	5.3 J	13.0 J	5.1 J
Zinc (dissolved)	µg/L	<1.8	13.4 J	3.3 J	<1.8	2.3 J
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	140	170	213	178	159
Chemical oxygen demand (COD)	mg/L	16.3 J	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	1.4 J	5.3	1.3	3.4 J	1.6 J
Nitrate (as N)	mg/L	0.14 J	1.7	0.28	0.53 J	0.089 J
Nitrite/Nitrate	mg/L	0.15	1.7 J	0.34 J	0.58 J	0.089
Sulfate	mg/L	3.2 J	13.3 J	2.7 J	5.5	1.8 J
Sulfide	mg/L	<0.0050 J	0.0050 J	R	R	<0.0050
Total dissolved solids (TDS)	mg/L	189	266	251	229	217
Total organic carbon (TOC)	mg/L	14.7	0.93 J	0.83 J	0.63 J	0.83 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6U-GW-011518	MW-7s	MW-8s	MW9d-GW-122017	MW-9s
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/20/2017	12/14/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.72
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.76
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.94
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<1.1
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14 J	<0.72
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.90
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.88
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14 J	<0.72
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<3.3
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.89
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.49
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<5.2
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.86
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<1.0
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.76
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<2.1
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<3.1
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.90
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.80
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.64
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.52
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<113
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<6.5
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<2.0
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<12.1
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<1.0
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<12.4
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.62
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.66
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<2.7
Acetone	µg/L	<8.8	<8.8	<8.8	<44.2
Acrolein	µg/L	<4.8	<4.8	<4.8	<24.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	
Sample Name:	MW6U-GW-011518	MW-7s	MW-8s	MW9d-GW-122017	MW-9s	
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/20/2017	12/14/2017	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<4.9	<4.9	<4.9 J	<4.9	<24.4
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.63
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.78
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<5.2
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<7.7
Carbon disulfide	µg/L	<0.37	<0.37	1.0	0.58 J	6.4
Carbon tetrachloride	µg/L	62.3	1.5	222	95.7	541
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.68
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<1.9
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<2.2
Chloroform (Trichloromethane)	µg/L	2.6	<0.46	46.0	3.3	65.8
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<5.4
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<1.0
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.58
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.70
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.67
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<2.5
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<1.6
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<1.9
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12 J	<0.12	<0.62
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.68
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<2.4
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.70
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<1.2
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.72
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<5.8
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.66
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.62
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42 J	<2.1
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.54
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.72

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6U-GW-011518	MW-7s	MW-8s	MW9d-GW-122017	MW-9s
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/20/2017	12/14/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.58
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<11.0
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13 J	<0.64
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.74
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.79
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<21.6
Toluene	µg/L	<0.17	<0.17	<0.17	<0.86
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<1.0
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.68
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<14.2
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.91
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.64
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<1.4
Vinyl acetate	µg/L	<1.5	<1.5 J	<1.5	<7.4 J
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.48
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<1.2
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<5.3 J	<4.1 J	<4.1 J	<4.8 J
Metals					
Aluminum (dissolved)	µg/L	3190	<8.6	109 J	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	75.2	17.3	36.7	27.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	63800	32100	41600	48600
Chromium (dissolved)	µg/L	1.6 J	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	1.7 J	<1.1	<1.1	<1.1

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

	Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
	Sample Name:	MW6U-GW-011518	MW-7s	MW-8s	MW9d-GW-122017	MW-9s
	Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/20/2017	12/14/2017
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	3.5 J	<0.83	0.84 J	1.4 J	1.8 J
Iron (dissolved)	µg/L	4030	<16.7	208	<16.7	16.9 J
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	20200	8390	9830	13800	13400
Manganese (dissolved)	µg/L	33.2	0.60 J	35.1	4.0 J	31.2
Mercury (dissolved)	µg/L	0.73	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	2090 J	275 J	277 J	2070 J	1240 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	16400	10200	10800	13800	14400
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	6.2 J	6.3 J
Vanadium (dissolved)	µg/L	15.8	1.3 J	1.6 J	6.5 J	1.2 J
Zinc (dissolved)	µg/L	12.2 J	5.5 J	4.9 J	2.1 J	5.4 J
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	251	89.1	131	152	82.2
Chemical oxygen demand (COD)	mg/L	33.1 J	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	5.9 J	9.6 J	2.0 J	10.6 J	37.2 J
Nitrate (as N)	mg/L	1.8 J	8.3	8.3	4.0	14.3
Nitrite/Nitrate	mg/L	1.8	8.0	8.7	4.4 J	15.3
Sulfate	mg/L	7.8 J	18.9 J	20.5 J	33.3	71.6 J
Sulfide	mg/L	0.063 J	0.22	<0.0050	R	<0.0050
Total dissolved solids (TDS)	mg/L	363	219	268	291	403
Total organic carbon (TOC)	mg/L	0.98 J	0.82 J	1.2	1.7 J	1.6

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
	Sample Name:	MW9U-GW-011518	MW-10s	MW-11s	MW-12s	MW13S-GW-121117
	Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/14/2017	12/11/2017
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-011518	MW-10s	MW-11s	MW-12s	MW13S-GW-121117
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/14/2017	12/11/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	0.76 J	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	298	0.86	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	8.7	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-011518	MW-10s	MW-11s	MW-12s	MW13S-GW-121117
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/14/2017	12/11/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5 J	<1.5 J	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<6.3 J	<5.2 J	<5.8 J	<9.6 J
Metals					
Aluminum (dissolved)	µg/L	121 J	15.9 J	<8.6	36.7 J
Antimony (dissolved)	µg/L	3.6 J	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	78.5	35.0	46.5	181
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	63600	71000	42700	73300
Chromium (dissolved)	µg/L	0.67 J	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	
Sample Name:	MW9U-GW-011518	MW-10s	MW-11s	MW-12s	MW13S-GW-121117	
Sample Date:	01/15/2018	12/14/2017	12/14/2017	12/14/2017	12/11/2017	
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	3.3 J	0.88 J	<0.83	0.90 J	0.85 J
Iron (dissolved)	µg/L	352	19.6 J	<16.7	22.6 J	34.7 J
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	13000	19900	12200	21400	10200
Manganese (dissolved)	µg/L	8.3	1.0 J	67.3	55.8	0.63 J
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	1.5 J	<1.1
Potassium (dissolved)	µg/L	6800	389 J	670 J	419 J	1230 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	161000	14000	18100	32900	13400
Thallium (dissolved)	µg/L	<4.8	4.9 J	5.8 J	<4.8	9.8 J
Vanadium (dissolved)	µg/L	3.4 J	2.8 J	5.5 J	2.5 J	8.8 J
Zinc (dissolved)	µg/L	9.1 J	8.7 J	2.4 J	5.8 J	2.5 J
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	100	305	204	239	161
Chemical oxygen demand (COD)	mg/L	44.2 J	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	326 J	0.95 J	1.0 J	42.3 J	1.2 J
Nitrate (as N)	mg/L	2.7 J	0.17	0.073 J	5.9	0.19
Nitrite/Nitrate	mg/L	2.6	0.20	0.070	5.8	0.21
Sulfate	mg/L	19.1 J	2.1 J	3.0 J	40.8 J	4.2
Sulfide	mg/L	<0.0050 J	<0.0050	<0.0050	0.0084 J	<0.0050
Total dissolved solids (TDS)	mg/L	733	335	249	502	214
Total organic carbon (TOC)	mg/L	2.2	0.67 J	0.30 J	3.1	2.4

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D
Sample Name:	MW-14d-GW-121517	MW15d-GW-122017	MW16d-GW-122017	MW17D-GW-122117	MW-18d-GW-121517
Sample Date:	12/15/2017	12/20/2017	12/20/2017	12/21/2017	12/15/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14 J	<0.14 J	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D
Sample Name:	MW-14d-GW-121517	MW15d-GW-122017	MW16d-GW-122017	MW17D-GW-122117	MW-18d-GW-121517
Sample Date:	12/15/2017	12/20/2017	12/20/2017	12/21/2017	12/15/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	2.2	<0.37
Carbon tetrachloride	µg/L	<0.20	9.7	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42 J	<0.42 J	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D
Sample Name:	MW-14d-GW-121517	MW15d-GW-122017	MW16d-GW-122017	MW17D-GW-122117	MW-18d-GW-121517
Sample Date:	12/15/2017	12/20/2017	12/20/2017	12/21/2017	12/15/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5 J	<1.5	<1.5	<1.5 J
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	5.2 J	<0.68
Methane	µg/L	<3.6 J	<4.3 J	<3.8 J	<5.3 J
Metals					
Aluminum (dissolved)	µg/L	90.9 J	150 J	<8.6	16.2 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	25.9	13.1	54.3	59.1
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	27000	36600	57000	39500
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	0.51 J
Cobalt (dissolved)	µg/L	<1.1	1.2 J	<1.1	1.4 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D
Sample Name:	MW-14d-GW-121517	MW15d-GW-122017	MW16d-GW-122017	MW17D-GW-122117	MW-18d-GW-121517
Sample Date:	12/15/2017	12/20/2017	12/20/2017	12/21/2017	12/15/2017
Parameters	Unit				
Metals (Continued)					
Copper (dissolved)	µg/L	<0.83	<0.83	<0.83	<0.83
Iron (dissolved)	µg/L	345	211	<16.7	421
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	8150	13800	17100	17400
Manganese (dissolved)	µg/L	436	20.5	0.49 J	320
Mercury (dissolved)	µg/L	0.066 J	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	358 J	2560	1340 J	15300
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	23600	15100	17300	50300
Thallium (dissolved)	µg/L	<4.8	5.1 J	<4.8	8.1 J
Vanadium (dissolved)	µg/L	5.2 J	10.3 J	9.4 J	1.1 J
Zinc (dissolved)	µg/L	2.2 J	<1.8	3.8 J	<1.8
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	142	169	210	191
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	48.2 J
Chloride	mg/L	1.9	3.0 J	6.2 J	34.4 J
Nitrate (as N)	mg/L	0.073 J	1.9 J	5.7 J	<0.0079
Nitrite/Nitrate	mg/L	0.066	2.0 J	6.0 J	<0.0075 J
Sulfate	mg/L	14.1 J	6.1	19.4	76.4
Sulfide	mg/L	<0.0050	0.0060 J	R	R
Total dissolved solids (TDS)	mg/L	245	229	316	406
Total organic carbon (TOC)	mg/L	3.5	2.2 J	1.2 J	13.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-19D	MW-20D	MW-21D	MW-22S	Randall Well Influent	Randall Well Influent
Sample Name:	MW19D-GW-122117	MW-20d	MW-21d	MW22S-GW-121217	Randall-GW-121217	FD1-GW-121217
Sample Date:	12/21/2017	12/14/2017	12/14/2017	12/12/2017	12/12/2017	12/12/2017 Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.29	<0.14	<0.14	<0.14	<0.29
1,1,1-Trichloroethane	µg/L	<0.30	<0.15	<0.15	<0.15	<0.30
1,1,2,2-Tetrachloroethane	µg/L	<0.38	<0.19	<0.19	<0.19	<0.38
1,1,2-Trichloroethane	µg/L	<0.44	<0.22	<0.22	<0.22	<0.44
1,1-Dichloroethane	µg/L	<0.29	<0.14 J	<0.14	<0.14	<0.29
1,1-Dichloroethene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.36
1,1-Dichloropropene	µg/L	<0.35	<0.18	<0.18	<0.18	<0.35
1,2,3-Trichlorobenzene	µg/L	<0.29 J	<0.14	<0.14	<0.14	<0.29
1,2,3-Trichloropropane	µg/L	<1.3	<0.66	<0.66	<0.66	<1.3
1,2,4-Trichlorobenzene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.36
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.098	<0.098	<0.098	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<2.1	<1.0	<1.0	<1.0	<2.1
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.34	<0.17	<0.17	<0.17	<0.34
1,2-Dichlorobenzene	µg/L	<0.42	<0.21	<0.21	<0.21	<0.42
1,2-Dichloroethane	µg/L	<0.30	<0.15	<0.15	<0.15	<0.30
1,2-Dichloroethene (total)	µg/L	<0.82	<0.41	<0.41	<0.41	<0.82
1,2-Dichloropropane	µg/L	<1.2	<0.62	<0.62	<0.62	<1.2
1,3,5-Trimethylbenzene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.36
1,3-Dichlorobenzene	µg/L	<0.32	<0.16	<0.16	<0.16	<0.32
1,3-Dichloropropane	µg/L	<0.26	<0.13	<0.13	<0.13	<0.26
1,4-Dichlorobenzene	µg/L	<0.21	<0.10	<0.10	<0.10	<0.21
1,4-Dioxane	µg/L	<45.2	<22.6	<22.6	<22.6	<45.2
2,2,4-Trimethylpentane	µg/L	<2.6	<1.3	<1.3	<1.3	<2.6
2,2-Dichloropropane	µg/L	<0.79	<0.40	<0.40	<0.40	<0.79
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<4.8	<2.4	<2.4	<2.4	<4.8
2-Chlorotoluene	µg/L	<0.41	<0.20	<0.20	<0.20	<0.41
2-Hexanone	µg/L	<5.0	<2.5	<2.5	<2.5	<5.0
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.25	<0.12	<0.12	<0.12	<0.25
4-Chlorotoluene	µg/L	<0.26	<0.13	<0.13	<0.13	<0.26
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<1.1	<0.55	<0.55	<0.55	<1.1
Acetone	µg/L	<17.7	<8.8	<8.8	<8.8	<17.7
Acrolein	µg/L	<9.7	<4.8	<4.8	<4.8	<9.7

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Location ID:	MW-19D	MW-20D	MW-21D	MW-22S	Randall Well Influent	Randall Well Influent	
Sample Name:	MW19D-GW-122117	MW-20d	MW-21d	MW22S-GW-121217	Randall-GW-121217	FD1-GW-121217	
Sample Date:	12/21/2017	12/14/2017	12/14/2017	12/12/2017	12/12/2017	12/12/2017 Duplicate	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<9.8	<4.9 J	<4.9	<4.9	<9.8	<9.8
Benzene	µg/L	<0.25	<0.13	<0.13	<0.13	<0.25	<0.25
Bromobenzene	µg/L	<0.31	<0.16	<0.16	<0.16	<0.31	<0.31
Bromodichloromethane	µg/L	<0.40	<0.20	<0.20	<0.20	<0.40	<0.40
Bromoform	µg/L	<2.1	<1.0	<1.0	<1.0	<2.1	<2.1
Bromomethane (Methyl bromide)	µg/L	<3.1	<1.5	<1.5	<1.5	<3.1	<3.1
Carbon disulfide	µg/L	2.6	<0.37	<0.37	<0.37	1.5 J	2.5
Carbon tetrachloride	µg/L	402	38.2	<0.20	2.2	289	292
Chlorobenzene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.27	<0.27
Chlorobromomethane	µg/L	<0.76	<0.38	<0.38	<0.38	<0.76	<0.76
Chloroethane	µg/L	<0.88	<0.44	<0.44	<0.44	<0.88	<0.88
Chloroform (Trichloromethane)	µg/L	19.4	0.93 J	<0.46	<0.46	10.2	9.9
Chloromethane (Methyl chloride)	µg/L	<2.2	<1.1	<1.1	<1.1	<2.2	<2.2
cis-1,2-Dichloroethene	µg/L	<0.40	<0.20	<0.20	<0.20	<0.40	<0.40
cis-1,3-Dichloropropene	µg/L	<0.23	<0.12	<0.12	<0.12	<0.23	<0.23
Cymene (p-Isopropyltoluene)	µg/L	<0.28	<0.14	<0.14	<0.14	<0.28	<0.28
Dibromochloromethane	µg/L	<0.27	<0.13	<0.13	<0.13	<0.27	<0.27
Dibromomethane	µg/L	<1.0	<0.50	<0.50	<0.50	<1.0	<1.0
Dichlorodifluoromethane (CFC-12)	µg/L	<0.63	<0.31	<0.31	<0.31	<0.63	<0.63
Dichlorofluoromethane	µg/L	<0.77	<0.38	<0.38	<0.38	<0.77	<0.77
Diisopropyl ether	µg/L	<0.25	<0.12 J	<0.12	<0.12	<0.25	<0.25
Ethylbenzene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.27	<0.27
Hexachlorobutadiene	µg/L	<0.96	<0.48	<0.48	<0.48	<0.96	<0.96
Isopropyl benzene	µg/L	<0.28	<0.14	<0.14	<0.14	<0.28	<0.28
m&p-Xylenes	µg/L	<0.49	<0.24	<0.24	<0.24	<0.49	<0.49
Methyl tert butyl ether (MTBE)	µg/L	<0.29	<0.14	<0.14	<0.14	<0.29	<0.29
Methylene chloride	µg/L	<2.3	<1.2	<1.2	<1.2	<2.3	<2.3
N-Butylbenzene	µg/L	<0.27	<0.13	<0.13	<0.13	<0.27	<0.27
N-Propylbenzene	µg/L	<0.25	<0.12	<0.12	<0.12	<0.25	<0.25
Naphthalene	µg/L	<0.84 J	<0.42	<0.42	<0.42	<0.84	<0.84
o-Xylene	µg/L	<0.22	<0.11	<0.11	<0.11	<0.22	<0.22
Styrene	µg/L	<0.29	<0.14	<0.14	<0.14	<0.29	<0.29

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	MW-19D MW19D-GW-122117 12/21/2017	MW-20D MW-20d 12/14/2017	MW-21D MW-21d 12/14/2017	MW-22S MW22S-GW-121217 12/12/2017	Randall Well Influent Randall-GW-121217 12/12/2017	Randall Well Influent FD1-GW-121217 12/12/2017 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.23	<0.12	<0.12	<0.12	<0.23
tert-Butyl alcohol	µg/L	<4.4	<2.2	<2.2	<2.2	<4.4
tert-Butyl ethyl ether	µg/L	<0.26	<0.13 J	<0.13	<0.13	<0.26
tert-Butylbenzene	µg/L	<0.29	<0.15	<0.15	<0.15	<0.29
Tetrachloroethene	µg/L	<0.32	<0.16	<0.16	<0.16	<0.32
Tetrahydrofuran	µg/L	<8.6	<4.3	<4.3	<4.3	<8.6
Toluene	µg/L	<0.34	<0.17	<0.17	<0.17	<0.34
trans-1,2-Dichloroethene	µg/L	<0.42	<0.21	<0.21	<0.21	<0.42
trans-1,3-Dichloropropene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.27
trans-1,4-Dichloro-2-butene	µg/L	<5.7	<2.8	<2.8	<2.8	<5.7
Trichloroethene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.36
Trichlorofluoromethane (CFC-11)	µg/L	<0.26	<0.13	<0.13	<0.13	<0.26
Trifluorotrchloroethane (CFC-113)	µg/L	<0.55	<0.28	<0.28	<0.28	<0.55
Vinyl acetate	µg/L	<3.0	<1.5	<1.5 J	<1.5	<3.0 J
Vinyl chloride	µg/L	<0.19	<0.096	<0.096	<0.096	<0.19
Xylenes (total)	µg/L	<0.49	<0.24	<0.24	<0.24	<0.49
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<2.9 J	<4.8 J	<3.8 J	<4.7 J	<4.3 J
Metals						
Aluminum (dissolved)	µg/L	<8.6	<8.6	<8.6	<8.6	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	12.4	22.1	66.2	65.6	20.5
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	1.3 J	<0.46
Calcium (dissolved)	µg/L	40100	54400	20600	46700	41800
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	2.9 J	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	MW-19D	MW-20D	MW-21D	MW-22S	Randall Well Influent	Randall Well Influent	
Sample Name:	MW19D-GW-122117	MW-20d	MW-21d	MW22S-GW-121217	Randall-GW-121217	FD1-GW-121217	
Sample Date:	12/21/2017	12/14/2017	12/14/2017	12/12/2017	12/12/2017	12/12/2017 Duplicate	
Parameters	Unit						
Metals (Continued)							
Copper (dissolved)	µg/L	1.0 J	2.2 J	2.1 J	0.89 J	11.1	11.4
Iron (dissolved)	µg/L	<16.7	<16.7	199	<16.7	<16.7	<16.7
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	17200	19800	18200	17500	13000	13100
Manganese (dissolved)	µg/L	5.1	15.0	81.8	461	1.1 J	0.92 J
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	2.8 J	<1.1	<1.1
Potassium (dissolved)	µg/L	3990	3320	3880	3240	1280 J	1320 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	14500	18800	21300	20400	13000	13200
Thallium (dissolved)	µg/L	8.5 J	<4.8	<4.8	6.0 J	9.8 J	7.2 J
Vanadium (dissolved)	µg/L	5.9 J	4.9 J	<0.42	4.0 J	5.0 J	5.2 J
Zinc (dissolved)	µg/L	4.1 J	2.2 J	<1.8	5.8 J	186	186
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	166	258	184	214	176	--
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	7.3 J	5.7 J	2.8 J	4.3	5.5 J	--
Nitrate (as N)	mg/L	4.7	1.2	<0.0079	2.0	2.5 J	--
Nitrite/Nitrate	mg/L	4.7 J	1.3	<0.0075	2.2	2.6	2.6
Sulfate	mg/L	23.9	7.9 J	8.1 J	14.9	9.9 J	--
Sulfide	mg/L	R	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	276	320	216	294	257	--
Total organic carbon (TOC)	mg/L	0.60 J	0.83 J	0.47 J	1.3 J	0.26 J	0.32 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID:	Reed Well (W30)	Silva Well	Silva Well	Stark Well (W15)	Stark Well (W15)	Stream Gauge 1	
Sample Name:	Reed-GW-010918	Silva-GW-010518	FD04	STARK-GW-010418	Stark-GW-010518	SG01-121217	
Sample Date:	01/09/2018	01/05/2018	01/05/2018 Duplicate	01/04/2018	01/05/2018	12/12/2017	
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	--	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	--	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	--	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	--	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	--	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	--	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	--	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	--	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	--	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	--	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	--	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	--	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	--	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	--	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	--	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	--	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	--	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	--	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID: Sample Name: Sample Date:	Reed Well (W30) Reed-GW-010918 01/09/2018	Silva Well Silva-GW-010518 01/05/2018	Silva Well FD04 01/05/2018 Duplicate	Stark Well (W15) STARK-GW-010418 01/04/2018	Stark Well (W15) Stark-GW-010518 01/05/2018	Stream Gauge 1 SG01-121217 12/12/2017
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	--	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	--	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	--	<1.5
Carbon disulfide	µg/L	<0.37	<0.37 J	<0.37	<0.37 J	--	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	--	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	--	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	<0.46	--	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	--	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	--	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	--	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	--	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	--	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	--	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	--	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	--	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	--	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	--	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:		Reed Well (W30) Reed-GW-010918 01/09/2018	Silva Well Silva-GW-010518 01/05/2018	Silva Well FD04 01/05/2018 Duplicate	Stark Well (W15) STARK-GW-010418 01/04/2018	Stark Well (W15) Stark-GW-010518 01/05/2018	Stream Gauge 1 SG01-121217 12/12/2017
Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	--	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	--	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	--	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	--	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	--	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	--	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	--	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	--	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	--	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	--	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	--	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	--	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	--	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	--	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	--	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	--	--
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	--	--
Methane	µg/L	<2.7 J	<7.3	<2.7 J	<2.2	--	--
Metals							
Aluminum (dissolved)	µg/L	<8.6	11.1 J	<8.6	--	<8.6	--
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	--	<3.1	--
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	--	<5.2	--
Barium (dissolved)	µg/L	44.1	29.2	29.3	--	34.2	--
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	--	<0.11	--
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	--	<0.46	--
Calcium (dissolved)	µg/L	26500	38300	38400	--	31000	--
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	--	<0.50	--
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	--	<1.1	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

	Location ID: Sample Name: Sample Date:	Reed Well (W30) Reed-GW-010918 01/09/2018	Silva Well Silva-GW-010518 01/05/2018	Silva Well FD04 01/05/2018 Duplicate	Stark Well (W15) STARK-GW-010418 01/04/2018	Stark Well (W15) Stark-GW-010518 01/05/2018	Stream Gauge 1 SG01-121217 12/12/2017
Parameters	Unit						
Metals (Continued)							
Copper (dissolved)	µg/L	1.0 J	8.5 J	8.6 J	--	263	--
Iron (dissolved)	µg/L	24.8 J	<16.7	<16.7	--	<16.7	--
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	--	<3.0	--
Magnesium (dissolved)	µg/L	10500	12700	12800	--	11000	--
Manganese (dissolved)	µg/L	1.1 J	<0.38	<0.38	--	0.39 J	--
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	--	<0.062	--
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	--	<1.1	--
Potassium (dissolved)	µg/L	3080	1520 J	1500 J	--	1690 J	--
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	--	<6.4	--
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	--	<0.27	--
Sodium (dissolved)	µg/L	13000	14300	14300	--	16800	--
Thallium (dissolved)	µg/L	7.2 J	5.1 J	4.9 J	--	5.8 J	--
Vanadium (dissolved)	µg/L	22.9	9.1 J	9.0 J	--	6.1 J	--
Zinc (dissolved)	µg/L	5.5 J	3.0 J	4.8 J	--	75.7	--
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	134	162	175	106	--	--
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	--	--
Chloride	mg/L	1.3	2.3	2.3	1.3	--	--
Nitrate (as N)	mg/L	0.25	2.3	2.3	14.4 J	--	--
Nitrite/Nitrate	mg/L	0.27	2.2	1.5	15.5	--	--
Sulfate	mg/L	6.9	<0.27	<0.27	10.9 J	--	--
Sulfide	mg/L	R	<0.0050	<0.0050	<0.0050	--	--
Total dissolved solids (TDS)	mg/L	198	238	245	261	--	--
Total organic carbon (TOC)	mg/L	0.21 J	0.42 J	0.47 J	0.38 J	--	--

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	Stream Gauge 2	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	SG02-121217	Thorson-GW-010518	MARLOWW20-GW-121117	W26-GW-011618	WS5-GW-011918
	Sample Date:	12/12/2017	01/05/2018	12/11/2017	01/16/2018	01/19/2018
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	0.53	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	0.33 J	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	Stream Gauge 2	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	SG02-121217	Thorson-GW-010518	MARLOWW20-GW-121117	W26-GW-011618	WS5-GW-011918
	Sample Date:	12/12/2017	01/05/2018	12/11/2017	01/16/2018	01/19/2018
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	0.13 J	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37 J	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	24.2	61.8
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	1.7	2.3
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Location ID: Sample Name: Sample Date:	Stream Gauge 2 SG02-121217 12/12/2017	Thorson Well Thorson-GW-010518 01/05/2018	Out-of-Use Marlow Well (W20) MARLOWW20-GW-121117 12/11/2017	Out-of-Use Freeman School Well (W26) W26-GW-011618 01/16/2018	WS-5 WS5-GW-011918 01/19/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24
Dissolved Gases					
Ethane	µg/L	--	<4.9 J	<4.9	<4.9
Ethene	µg/L	--	<0.68 J	<0.68	<0.68
Methane	µg/L	--	<4.0 J	120	<3.5 J
Metals					
Aluminum (dissolved)	µg/L	--	<8.6	<8.6	11.0 J
Antimony (dissolved)	µg/L	--	<3.1	<3.1	3.6 J
Arsenic (dissolved)	µg/L	--	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	--	50.9	3.6 J	6.2 J
Beryllium (dissolved)	µg/L	--	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	--	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	--	23000	15100	36500
Chromium (dissolved)	µg/L	--	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	--	<1.1	<1.1	<1.1

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

	Location ID:	Stream Gauge 2	Thorson Well	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5
	Sample Name:	SG02-121217	Thorson-GW-010518	MARLOWW20-GW-121117	W26-GW-011618	WS5-GW-011918
	Sample Date:	12/12/2017	01/05/2018	12/11/2017	01/16/2018	01/19/2018
Parameters	Unit					
Metals (Continued)						
Copper (dissolved)	µg/L	--	0.83 J	<0.83	<0.83	13.2
Iron (dissolved)	µg/L	--	2570	151	<16.7	<16.7
Lead (dissolved)	µg/L	--	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	--	11600	6040	10900	21100
Manganese (dissolved)	µg/L	--	33.1	69.8	0.39 J	<0.38
Mercury (dissolved)	µg/L	--	<0.062	<0.062	<0.062	0.069 J
Nickel (dissolved)	µg/L	--	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	--	3760	1800 J	2180 J	4400
Selenium (dissolved)	µg/L	--	<6.4	<6.4	<6.4	<6.4
Silver (dissolved)	µg/L	--	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	--	13800	8360	12900	16700
Thallium (dissolved)	µg/L	--	6.3 J	8.8 J	<4.8	6.8 J
Vanadium (dissolved)	µg/L	--	0.66 J	<0.42	7.0 J	14.5 J
Zinc (dissolved)	µg/L	--	54.4	7.1 J	87.1	67.4
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	--	143	85.5	144	224
Chemical oxygen demand (COD)	mg/L	--	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	--	1.2	2.3	4.2 J	8.2
Nitrate (as N)	mg/L	--	<0.0079	<0.0079	2.1 J	1.3
Nitrite/Nitrate	mg/L	--	<0.0075	<0.0075	1.9	1.4
Sulfate	mg/L	--	2.2	<0.67 J	9.0 J	7.4
Sulfide	mg/L	--	<0.0050	<0.0050	<0.0050 J	<0.0050
Total dissolved solids (TDS)	mg/L	--	200	89.0	226	282
Total organic carbon (TOC)	mg/L	--	<0.20	1.7	0.56 J	0.84 J

Notes:

"--" - Not analyzed

< - Not detected at the associated reporting limit

< () J - Not detected; associated reporting limit is estimated

J - Estimated concentration

R - Rejected

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	Randall-GW-121217	48 hours	>48 hours	Nitrate (as N)	2.5 J	mg/L
	Marlow-GW-121217	48 hours	>48 hours	Nitrate (as N)	4.0 J	mg/L
	FD2-GW-121217	48 hours	>48 hours	Nitrate (as N)	4.1 J	mg/L
	MW6d-GW-122017	48 hours	>48 hours	Nitrate (as N)	0.53 J	mg/L
	MW15d-GW-122017	48 hours	>48 hours	Nitrate (as N)	1.9 J	mg/L
	MW16d-GW-122017	48 hours	>48 hours	Nitrate (as N)	5.7 J	mg/L
	MW9U-GW-011518	48 hours	>48 hours	Nitrate (as N)	2.7 J	mg/L
	MW3D-GW-011518	48 hours	>48 hours	Nitrate (as N)	0.14 J	mg/L
	MW1S-GW-011518	48 hours	>48 hours	Nitrate (as N)	0.053 J	mg/L
	MW2D-GW-011518	48 hours	>48 hours	Nitrate (as N)	<0.0079 J	mg/L
	MW6U-GW-011518	48 hours	>48 hours	Nitrate (as N)	1.8 J	mg/L
	MarlowNo.2-GW-011618	48 hours	>48 hours	Nitrate (as N)	<0.0079 J	mg/L
	W26-GW-011618	48 hours	>48 hours	Nitrate (as N)	2.1 J	mg/L

Notes:

- J - Estimated concentration
<() J - Not detected; associated reporting limit is estimated

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units	
Dissolved Gases	Methane	12/14/2017	5.7 J	MW13S-GW-121117	7.5 J	<7.5 J	µg/L	
				MW22S-GW-121217	4.7 J	<4.7 J	µg/L	
		12/15/2017	4.2 J	Randall-GW-121217	4.3 J	<4.3 J	µg/L	
				FD1-GW-121217	3.6 J	<3.6 J	µg/L	
				FD2-GW-121217	2.9 J	<2.9 J	µg/L	
		12/20/2017	4.1 J	Marlow-GW-121217	4.6 J	<4.6 J	µg/L	
				MW-6s	3.6 J	<3.6 J	µg/L	
				MW-12s	9.6 J	<9.6 J	µg/L	
				MW-11s	5.8 J	<5.8 J	µg/L	
				MW-10s	5.2 J	<5.2 J	µg/L	
				MW-7s	4.1 J	<4.1 J	µg/L	
				MW-8s	4.1 J	<4.1 J	µg/L	
				3.2 J	MW-9s	4.8 J	<4.8 J	µg/L
					MW-21d	3.8 J	<3.8 J	µg/L
					MW-20d	4.8 J	<4.8 J	µg/L
		12/21/2017	4.2 J	MW-14d-GW-121517	3.6 J	<3.6 J	µg/L	
				MW-18d-GW-121517	5.3 J	<5.3 J	µg/L	
				MW-4d-GW-121517	3.4 J	<3.4 J	µg/L	
		12/26/2017	3.8 J	MW5d-GW-121917	4.7 J	<4.7 J	µg/L	
				MW6d-GW-122017	4.4 J	<4.4 J	µg/L	
MW15d-GW-122017	4.3 J			<4.3 J	µg/L			
MW9d-GW-122017	4.4 J			<4.4 J	µg/L			
MW16d-GW-122017	3.8 J			<3.8 J	µg/L			
12/28/2017	4.2 J	MW17D-GW-122117	2.7 J	<2.7 J	µg/L			
		MW19D-GW-122117	2.9 J	<2.9 J	µg/L			
		MW1D-GW-122117	5.0 J	<5.0 J	µg/L			

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases	Methane	01/08/2018	3.6 J	STARK-GW-010418	2.2 J	<2.2 J	µg/L
				ATWOODS-GW-010418	3.7 J	<3.7 J	µg/L
				ATWOODH-GW-010418	3.5 J	<3.5 J	µg/L
				Asher-GW-010518	8.7 J	<8.7 J	µg/L
				Silva-GW-010518	7.3 J	<7.3 J	µg/L
				Lang-GW-010518	4.2 J	<4.2 J	µg/L
		01/12/2018	3.3 J	Thorson-GW-010518	4.0 J	<4.0 J	µg/L
				FD03	1.9 J	<1.9 J	µg/L
				FD04	2.7 J	<2.7 J	µg/L
				FD05	2.9 J	<2.9 J	µg/L
				Lashaw-GW-010918	2.1 J	<2.1 J	µg/L
				Reed-GW-010918	2.7 J	<2.7 J	µg/L
		01/22/2018	3.6 J	MW9U-GW-011518	6.3 J	<6.3 J	µg/L
				MW3D-GW-011518	5.0 J	<5.0 J	µg/L
				MW6U-GW-011518	5.3 J	<5.3 J	µg/L
W26-GW-011618	3.5 J			<3.5 J	µg/L		
WS5-GW-011918	2.0 J			<2.0 J	µg/L		
General Chemistry	Sulfate	12/13/2017	0.40 J	MARLOWW20-GW-121117	0.67 J	<0.67 J	mg/L
				Nitrite/Nitrate	01/20/2018	0.0081 J	MW2D-GW-011518
		MarlowNo.2-GW-011618	0.014 J	<0.014 J			mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

**Qualified Sample Results Due to Outlying LCS/LCSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	Vinyl acetate	12/19/2017	64	80	22	68-137	30	FD1-GW-121217	<3.0 J	µg/L
								MW-6s	<1.5 J	µg/L
								MW-12s	<1.5 J	µg/L
								MW-11s	<1.5 J	µg/L
								MW-10s	<1.5 J	µg/L
								MW-7s	<1.5 J	µg/L
								MW-9s	<7.4 J	µg/L
								MW-21d	<1.5 J	µg/L
								MW-14d-GW-121517	<1.5 J	µg/L
								MW-18d-GW-121517	<1.5 J	µg/L
	MW-4d-GW-121517	<1.5 J	µg/L							
	1,1-Dichloroethane	12/19/2017	98	71	32	75-125	30	MW-8s	<0.14 J	µg/L
								MW-20d	<0.14 J	µg/L
	Acrylonitrile	12/19/2017	90	63	35	68-129	30	MW-8s	<4.9 J	µg/L
								MW-20d	<4.9 J	µg/L
	Diisopropyl ether	12/19/2017	89	61	37	69-125	30	MW-8s	<0.12 J	µg/L
								MW-20d	<0.12 J	µg/L

Table 6

**Qualified Sample Results Due to Outlying LCS/LCSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	tert-Butyl ethyl ether	12/19/2017	95	72	29	73-125	30	MW-8s	<0.13 J	µg/L
								MW-20d	<0.13 J	µg/L
	1,2,3-Trichlorobenzene	12/26/2017	71	81	12	75-125	30	MW17D-GW-122117	<0.14 J	µg/L
								MW19D-GW-122117	<0.29 J	µg/L
								MW1D-GW-122117	<0.14 J	µg/L
								MW6d-GW-122017	<0.14 J	µg/L
								MW15d-GW-122017	<0.14 J	µg/L
								MW9d-GW-122017	<0.14 J	µg/L
								MW16d-GW-122017	<0.14 J	µg/L
	Naphthalene	12/26/2017	69	77	12	74-125	30	MW17D-GW-122117	<0.42 J	µg/L
								MW19D-GW-122117	<0.84 J	µg/L
								MW1D-GW-122117	<0.42 J	µg/L
								MW6d-GW-122017	<0.42 J	µg/L
								MW15d-GW-122017	<0.42 J	µg/L
								MW9d-GW-122017	<0.42 J	µg/L
								MW16d-GW-122017	<0.42 J	µg/L

Table 6

**Qualified Sample Results Due to Outlying LCS/LCSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	Carbon disulfide	01/05/2018	68	--	--	71-125	--	STARK-GW-010418	<0.37 J	µg/L
								ATWOODS-GW-010418	<0.37 J	µg/L
								ATWOODH-GW-010418	<0.37 J	µg/L
		01/08/2018	60	--	--	71-125	--	Thorson-GW-010518	0.37 J	µg/L
								Asher-GW-010518	0.37 J	µg/L
								Silva-GW-010518	0.37 J	µg/L
								Lang-GW-010518	0.37 J	µg/L

- Notes:
- LCS - Laboratory Control Sample
 - LCSD - Laboratory Control Sample Duplicate
 - RPD - Relative Percent Difference
 - <() J - Not detected; associated reporting limit is estimated
 - VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery		% Recovery	RPD			
VOCs	Thorson-GW-010518	Carbon disulfide	64	62	3	72-132	30	Thorson-GW-010518	<0.37 J	µg/L
Dissolved Gases	Thorson-GW-010518	Ethane	88	28	102	30-150	20	Thorson-GW-010518	<4.9 J	µg/L
		Ethene	89	29	102	30/150	20	Thorson-GW-010518	<0.68 J	µg/L
General Chemistry	MW5d-GW-121917	Sulfide	21	--	--	75-125	--	MW5d-GW-121917	R	
								MW17D-GW-122117	R	
								MW19D-GW-122117	R	
								MW1D-GW-122117	R	
								MW6d-GW-122017	R	
								MW15d-GW-122017	0.0060 J	mg/L
								MW9d-GW-122017	R	
	MW16d-GW-122017	R								
	Lashaw-GW-010918	Sulfide	21	--	--	75-125	--	Lashaw-GW-010918	R	
								Reed-GW-010918	R	
	MW9U-GW-011518	Sulfide	37	--	--	75-125	--	MW9U-GW-011518	<0.0050 J	mg/L
								MW3D-GW-011518	<0.0050 J	mg/L
								MW2D-GW-011518	0.0055 J	mg/L
								MW6U-GW-011518	0.063 J	mg/L
MarlowNo.2-GW-011618								<0.0050 J	mg/L	
Randall-GW-121217	Nitrate (as N)	46	52	2	90-110	20	W26-GW-011618	<0.0050 J	mg/L	
							Randall-GW-121217	2.5 J	mg/L	
							Marlow-GW-121217	4.0 J	mg/L	
							FD2-GW-121217	4.1 J	mg/L	

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery		% Recovery	RPD			
General Chemistry	Randall-GW-121217	Sulfate	83	87	3	90-110	20	Randall-GW-121217	9.9 J	mg/L
			Marlow-GW-121217	13.4 J	mg/L					
			FD2-GW-121217	13.6 J	mg/L					
	Marlow-GW-121217	Chloride	70	58	6	90-110	20	Randall-GW-121217	5.5 J	mg/L
			Marlow-GW-121217	15.1 J	mg/L					
			FD2-GW-121217	15.3 J	mg/L					
		Nitrate (as N)	10	-11	5	90-110	20	Randall-GW-121217	2.5 J	mg/L
			Marlow-GW-121217	4.0 J	mg/L					
			FD2-GW-121217	4.1 J	mg/L					
		Sulfate	75	64	7	90-110	20	Randall-GW-121217	9.9 J	mg/L
			Marlow-GW-121217	13.4 J	mg/L					
			FD2-GW-121217	13.6 J	mg/L					
MW-12s	Chloride	28	29	0	90-110	20	MW-6s	1.6 J	mg/L	
		MW-12s	42.3 J	mg/L						
		MW-11s	1.0 J	mg/L						
		MW-10s	0.95 J	mg/L						
		MW-7s	9.6 J	mg/L						
		MW-8s	2.0 J	mg/L						
MW-12s	Chloride	28	29	0	90-110	20	MW-9s	37.2 J	mg/L	
		MW-21d	2.8 J	mg/L						
		MW-20d	5.7 J	mg/L						

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery		% Recovery	RPD			
General Chemistry	MW-12s	Sulfate	32	34	0	90-110	20	MW-6s	1.8 J	mg/L
								MW-12s	40.8 J	mg/L
								MW-11s	3.0 J	mg/L
								MW-10s	2.1 J	mg/L
								MW-7s	18.9 J	mg/L
								MW-8s	20.5 J	mg/L
								MW-9s	71.6 J	mg/L
								MW-21d	8.1 J	mg/L
	MW-20d	7.9 J	mg/L							
	MW-14d-GW-121517	Sulfate	82	83	0	90-110	20	MW-14d-GW-121517	14.1 J	mg/L
								MW-18d-GW-121517	8.3 J	mg/L
								MW-4d-GW-121517	13.3 J	mg/L
	MW5d-GW-121917	Sulfate	41	37	1	90-110	20	MW5d-GW-121917	2.7 J	mg/L
	MW17D-GW-122117	Chloride	67	50	5	90-110	20	MW17D-GW-122117	34.4 J	mg/L
								MW19D-GW-122117	7.3 J	mg/L
								MW1D-GW-122117	1.8 J	mg/L
								MW6d-GW-122017	3.4 J	mg/L
								MW15d-GW-122017	3.0 J	mg/L
								MW9d-GW-122017	10.6 J	mg/L
								MW16d-GW-122017	6.2 J	mg/L
STARK-GW-010418	Nitrate (as N)	88	86	1	90-110	20	STARK-GW-010418	14.4 J	mg/L	
							ATWOODS-GW-010418	1.2 J	mg/L	
							ATWOODH-GW-010418	0.49 J	mg/L	

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units						
			% Recovery	% Recovery		% Recovery	RPD									
General Chemistry	STARK-GW-010418	Sulfate	66	82	10	90-110	20	STARK-GW-010418	10.9 J	mg/L						
								ATWOODS-GW-010418	3.8 J	mg/L						
								ATWOODH-GW-010418	4.0 J	mg/L						
	MW9U-GW-011518	Chloride	30	80	16	90-110	20	MW9U-GW-011518	326 J	mg/L						
								MW3D-GW-011518	1.4 J	mg/L						
								MW1S-GW-011518	7.6 J	mg/L						
								MW2D-GW-011518	1.5 J	mg/L						
								MW6U-GW-011518	5.9 J	mg/L						
								MarlowNo.2-GW-011618	2.2 J	mg/L						
								W26-GW-011618	4.2 J	mg/L						
								Nitrate (as N)	70	75	1	90-110	20	MW9U-GW-011518	2.7 J	mg/L
														MW3D-GW-011518	0.14 J	mg/L
														MW1S-GW-011518	0.053 J	mg/L
														MW2D-GW-011518	<0.0079 J	mg/L
														MW6U-GW-011518	1.8 J	mg/L
														MarlowNo.2-GW-011618	<0.0079 J	mg/L
								W26-GW-011618	2.1 J	mg/L						
								Sulfate	81	84	1	90-110	20	MW9U-GW-011518	19.1 J	mg/L
MW3D-GW-011518	3.2 J	mg/L														
MW1S-GW-011518	20.1 J	mg/L														
MW2D-GW-011518	5.7 J	mg/L														
MW6U-GW-011518	7.8 J	mg/L														
MarlowNo.2-GW-011618	2.6 J	mg/L														
W26-GW-011618	9.0 J	mg/L														

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2017 - January 2018**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	MW17D-GW-122117	Nitrite/Nitrate	87	86	1	90-110	20	MW-4d-GW-121517	1.7 J	mg/L
								MW5d-GW-121917	0.34 J	mg/L
								MW17D-GW-122117	<0.0075 J	mg/L
								MW19D-GW-122117	4.7 J	mg/L
								MW6d-GW-122017	0.58 J	mg/L
								MW15d-GW-122017	2.0 J	mg/L
								MW9d-GW-122017	4.4 J	mg/L
MW16d-GW-122017	6.0 J	mg/L								

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected
- VOCs - Volatile Organic Compounds

Table 8

Qualified Sample Data Due to Variability in Field Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2017 - January 2018

Parameter	Analyte	RPD/Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
Metals	Copper (dissolved)	Diff 37.1	Marlow-GW-121217	29.3 J	FD2-GW-121217	66.4 J	µg/L
	Zinc (dissolved)	Diff 34.1	Marlow-GW-121217	45.3 J	FD2-GW-121217	79.4 J	µg/L
General Chemistry	Chloride	RPD 120.9	Asher-GW-010518	7.3 J	FD03	1.8 J	mg/L
	Nitrate (as N)	RPD 177.7	Asher-GW-010518	7.1 J	FD03	0.42 J	mg/L
	Chloride	RPD 143.5	Lang-GW-010518	7.3 J	FD05	<0.14 J	mg/L
	Nitrate (as N)	RPD 194.4	Lang-GW-010518	7.1 J	FD05	<0.0079 J	mg/L

Notes:

- Diff - Difference (i.e., >1X RL for waters or >2XRL for soils)
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

March 1, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/405-NF Tel: 206-914-3141

cc: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10410064
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
November 2017**

1. Introduction

This document details a reduced validation of analytical results for soil and water samples collected in support of the Subsurface Anomaly Investigation at the Cenex Harvest Lease Site in Freeman, Washington during November 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Tables 3A and 3B.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the method. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of chloroform present at a low concentration. The associated sample result was non-detect and was not impacted. No qualification of the data was deemed necessary.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



The LCS/LCSD contained all analytes of interest. All LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of one low 2,2,4-trimethylpentane recovery. The associated sample result was qualified as estimated due to the implied low bias (see Table 4).

6. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Tables 3A and 3B.

All soil results were reported on a dry weight basis.

7. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

**Sample Collection and Analysis Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>	
							Moisture	VOCs
GSNE-S-4	GSNE	Soil	4	4.5	11/02/2017	10:15	X	X
GSNE-W	GSNE	Water	--	--	11/02/2017	09:20		X
GSSW-S-5	GSSW	Soil	5	5.5	11/02/2017	11:50	X	X

Notes:

- ft. bgs. - Feet below ground surface
VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

Analytical Methods
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Table 3A

Analytical Results Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017

Location ID:	GSNE	GSSW
Sample Name:	GSNE-S-4	GSSW-S-5
Sample Date:	11/02/2017	11/02/2017
Depth:	4-4.5 ft bgs	5-5.5 ft bgs

Parameters	Unit		
Volatile Organic Compounds			
1,1,1-Trichloroethane	µg/kg	<12.8	<16.0
1,1,1,2-Tetrachloroethane	µg/kg	<25.8	<32.1
1,1,2-Trichloroethane	µg/kg	<15.5	<19.2
1,1-Dichloroethane	µg/kg	<14.8	<18.4
1,1-Dichloroethene	µg/kg	<24.4	<30.4
1,2,4-Trichlorobenzene	µg/kg	<16.2	<20.2
1,2,4-Trimethylbenzene	µg/kg	<14.8	<18.4
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	<22.6	<28.1
1,2-Dichlorobenzene	µg/kg	<12.4	<15.4
1,2-Dichloroethane	µg/kg	<20.8	<25.8
1,3,5-Trimethylbenzene	µg/kg	<11.0	<13.7
1,3-Dichlorobenzene	µg/kg	<19.3	<24.0
1,4-Dichlorobenzene	µg/kg	<20.7	<25.7
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	<102	<126
2-Hexanone	µg/kg	<73.2	<90.9
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	<75.2	<93.5
Acetone	µg/kg	<551	<685
Benzene	µg/kg	<8.4	<10.4
Bromodichloromethane	µg/kg	<20.6	<25.6
Bromoform	µg/kg	<41.0	<51.0
Bromomethane (Methyl bromide)	µg/kg	<60.6	<75.3
Carbon tetrachloride	µg/kg	<22.7	<28.2
Chlorobenzene	µg/kg	<16.9	<21.0
Chloroethane	µg/kg	<87.0	<108
Chloroform (Trichloromethane)	µg/kg	<23.3	<28.9
Chloromethane (Methyl chloride)	µg/kg	<36.8	<45.8
cis-1,2-Dichloroethene	µg/kg	<10.2	<12.7
cis-1,3-Dichloropropene	µg/kg	<18.2	<22.6
Dibromochloromethane	µg/kg	<56.8	<70.6
Dichlorodifluoromethane (CFC-12)	µg/kg	<88.6	<110
Ethylbenzene	µg/kg	<16.5	<20.5
Hexachlorobutadiene	µg/kg	<58.6	<72.9
m&p-Xylenes	µg/kg	<30.4	<37.8

Table 3A

**Analytical Results Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017**

Location ID:	GSNE	GSSW
Sample Name:	GSNE-S-4	GSSW-S-5
Sample Date:	11/02/2017	11/02/2017
Depth:	4-4.5 ft bgs	5-5.5 ft bgs

Parameters	Unit		
Volatile Organic Compounds			
Methyl tert butyl ether (MTBE)	µg/kg	<17.7	<22.0
Methylene chloride	µg/kg	63.2 J	65.4 J
Naphthalene	µg/kg	<50.0	<62.1
o-Xylene	µg/kg	<15.2	<18.9
Styrene	µg/kg	<15.3	<19.1
Tetrachloroethene	µg/kg	<23.7	<29.5
Tetrahydrofuran	µg/kg	<591	<734
Toluene	µg/kg	<16.1	<20.1
trans-1,2-Dichloroethene	µg/kg	<23.2	<28.8
trans-1,3-Dichloropropene	µg/kg	<40.6	<50.4
Trichloroethene	µg/kg	<9.6	<11.9
Trichlorofluoromethane (CFC-11)	µg/kg	<84.4	<105
Trifluorotrchloroethane (CFC-113)	µg/kg	<30.0	<37.3
Vinyl acetate	µg/kg	<72.0	<89.5
Vinyl chloride	µg/kg	<9.5	<11.9
General Chemistry			
Percent moisture	%	18.4	22.7

Notes:

< - Not detected at the associated reporting limit

ft bgs - Feet below ground surface

J - Estimated concentration

Table 3B

Analytical Results Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017

Location ID:
Sample Name:
Sample Date:

GSNE
GSNE-W
11/02/2017

Parameters	Unit	
Volatile Organic Compounds		
1,1,1,2-Tetrachloroethane	µg/L	<0.14
1,1,1-Trichloroethane	µg/L	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19
1,1,2-Trichloroethane	µg/L	<0.22
1,1-Dichloroethane	µg/L	<0.14
1,1-Dichloroethene	µg/L	<0.18
1,1-Dichloropropene	µg/L	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14
1,2,3-Trichloropropane	µg/L	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17
1,2-Dichlorobenzene	µg/L	<0.21
1,2-Dichloroethane	µg/L	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41
1,2-Dichloropropane	µg/L	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18
1,3-Dichlorobenzene	µg/L	<0.16
1,3-Dichloropropane	µg/L	<0.13
1,4-Dichlorobenzene	µg/L	<0.10
1,4-Dioxane	µg/L	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3 J
2,2-Dichloropropane	µg/L	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4
2-Chlorotoluene	µg/L	<0.20
2-Hexanone	µg/L	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12
4-Chlorotoluene	µg/L	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55
Acetone	µg/L	44.1
Acrolein	µg/L	<4.8
Acrylonitrile	µg/L	<4.9
Benzene	µg/L	<0.13

Table 3B

**Analytical Results Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017**

Location ID:
Sample Name:
Sample Date:

**GSNE
GSNE-W
11/02/2017**

Parameters	Unit	
Volatile Organic Compounds		
Bromobenzene	µg/L	<0.16
Bromodichloromethane	µg/L	<0.20
Bromoform	µg/L	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5
Carbon disulfide	µg/L	<0.37
Carbon tetrachloride	µg/L	<0.20
Chlorobenzene	µg/L	<0.14
Chlorobromomethane	µg/L	<0.38
Chloroethane	µg/L	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46
Chloromethane (Methyl chloride)	µg/L	1.3 J
cis-1,2-Dichloroethene	µg/L	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14
Dibromochloromethane	µg/L	<0.13
Dibromomethane	µg/L	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31
Dichlorofluoromethane	µg/L	<0.38
Diisopropyl ether	µg/L	<0.12
Ethylbenzene	µg/L	<0.14
Hexachlorobutadiene	µg/L	<0.48
Isopropyl benzene	µg/L	<0.14
m&p-Xylenes	µg/L	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14
Methylene chloride	µg/L	<1.2
N-Butylbenzene	µg/L	<0.13
N-Propylbenzene	µg/L	<0.12
Naphthalene	µg/L	<0.42
o-Xylene	µg/L	<0.11
Styrene	µg/L	<0.14
tert-Amyl methyl ether	µg/L	<0.12
tert-Butyl alcohol	µg/L	<2.2
tert-Butyl ethyl ether	µg/L	<0.13
tert-Butylbenzene	µg/L	<0.15

Table 3B

**Analytical Results Summary
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017**

Location ID:
Sample Name:
Sample Date:

**GSNE
GSNE-W
11/02/2017**

Parameters	Unit	
Volatile Organic Compounds		
Tetrachloroethene	µg/L	<0.16
Tetrahydrofuran	µg/L	<4.3
Toluene	µg/L	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8
Trichloroethene	µg/L	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28
Vinyl acetate	µg/L	<1.5
Vinyl chloride	µg/L	<0.096
Xylenes (total)	µg/L	<0.24

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- J - Estimated concentration

Table 4

**Qualified Sample Results Due to Outlying LCS/LCSD Results
Subsurface Anomaly Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
November 2017**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	2,2,4-Trimethylpentane	11/15/2017	76	67	13	68-125	30	GSNE-W	<1.3 J	µg/L

Notes:

- LCS - Laboratory Control Sample
- LCSD - Laboratory Control Sample Duplicate
- RPD - Relative Percent Difference
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

March 1, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/408-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10418534
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
January 2018**

1. Introduction

This document details a reduced validation of analytical results for soil samples collected in support of the Phase II Remedial Investigation at the Cenex Harvest Lease Site in Freeman, Washington during January 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria with the exception of two low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 5).

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of one high acetone recovery. The associated sample result was non-detect and was not impacted. No qualification of the data was deemed necessary.

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.



9. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3.

All soil results were reported on a dry weight basis.

10. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

**Sample Collection and Analysis Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
						Moisture	VOCs	
SB101B-5	SB101B	Soil	5	01/23/2018	10:40	X	X	DUP
SB101B-15	SB101B	Soil	15	01/23/2018	10:55	X	X	
SB101B-25	SB101B	Soil	25	01/23/2018	11:35	X	X	
SB101B-36	SB101B	Soil	36	01/23/2018	12:25	X	X	
SB102B-5	SB102B	Soil	5	01/24/2018	12:25	X	X	
SB102B-15	SB102B	Soil	15	01/24/2018	12:30	X	X	
SB102B-25	SB102B	Soil	25	01/24/2018	12:35	X	X	
SB102B-30	SB102B	Soil	30	01/24/2018	12:40	X	X	
SB103B-5	SB103B	Soil	5	01/25/2018	09:25	X	X	
SB103B-15	SB103B	Soil	15	01/25/2018	09:55	X	X	
SB103B-22	SB103B	Soil	22	01/25/2018	10:00	X	X	
SB103B-27	SB103B	Soil	27	01/25/2018	10:30	X	X	
SB103B-27-FD	SB103B	Soil	27	01/25/2018	10:40	X	X	FD (SB103B-27)
SB104B-5	SB104B	Soil	5	01/25/2018	11:20	X	X	
SB104B-15	SB104B	Soil	15	01/25/2018	12:00	X	X	
SB104B-22	SB104B	Soil	22	01/25/2018	12:25	X	X	
SB104B-27	SB104B	Soil	27	01/25/2018	12:30	X	X	DUP - MS/MSD
Trip Blank	--	Soil	--	01/23/2018	--		X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- "--" - Not Applicable

Table 2

**Analytical Methods
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Location ID:	SB101B	SB101B	SB101B	SB101B	SB102B	SB102B	SB102B	SB102B	SB103B
Sample Name:	SB101B-5	SB101B-15	SB101B-25	SB101B-36	SB102B-5	SB102B-15	SB102B-25	SB102B-30	SB103B-5
Sample Date:	01/23/2018	01/23/2018	01/23/2018	01/23/2018	01/24/2018	01/24/2018	01/24/2018	01/24/2018	01/25/2018
Depth:	5 ft bgs	15 ft bgs	25 ft bgs	36 ft bgs	5 ft bgs	15 ft bgs	25 ft bgs	30 ft bgs	5 ft bgs

Parameters	Unit	SB101B	SB101B	SB101B	SB101B	SB102B	SB102B	SB102B	SB102B	SB103B
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/kg	<0.80	<0.70	<0.97	<1.1	<0.72	<1.1	<1.0	<1.1	<0.73
1,1,2,2-Tetrachloroethane	µg/kg	<0.58	<0.50	<0.70	<0.79	<0.52	<0.79	<0.72	<0.76	<0.53
1,1,2-Trichloroethane	µg/kg	<0.74	<0.64	<0.89	<1.0	<0.66	<1.0	<0.92	<0.97	<0.67
1,1-Dichloroethane	µg/kg	<0.76	<0.67	<0.92	<1.0	<0.68	<1.1	<0.95	<1.0	<0.70
1,1-Dichloroethene	µg/kg	<0.61	<0.53	<0.74	<0.84	<0.55	<0.84	<0.76	<0.80	<0.55
1,2,4-Trichlorobenzene	µg/kg	<1.7	<1.5	<2.1	<2.4	<1.5	<2.4	<2.1	<2.3	<1.6
1,2,4-Trimethylbenzene	µg/kg	<0.21	<0.18	<0.25	<0.28	0.26 J	<0.28	<0.26	<0.27	<0.19
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	<0.83	<0.73	<1.0	<1.1	<0.75	<1.1	<1.0	<1.1	<0.76
1,2-Dichlorobenzene	µg/kg	<0.67	<0.59	<0.81	<0.92	<0.60	<0.92	<0.84	<0.88	<0.61
1,2-Dichloroethane	µg/kg	<0.75	<0.66	<0.91	<1.0	<0.67	<1.0	<0.94	<0.99	<0.69
1,3,5-Trimethylbenzene	µg/kg	<0.51	<0.45	<0.62	<0.70	<0.46	<0.70	<0.64	<0.67	<0.47
1,3-Dichlorobenzene	µg/kg	<0.55	<0.48	<0.67	<0.76	<0.49	<0.76	<0.69	<0.73	<0.50
1,4-Dichlorobenzene	µg/kg	<0.61	<0.54	<0.74	<0.84	<0.55	<0.85	<0.77	<0.81	<0.56
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	<3.3	<2.9	<3.9	<4.5	5.4 J	<4.5	<4.1	<4.3	<3.0
2-Hexanone	µg/kg	<2.5	<2.2	<3.0	<3.4	<2.2	<3.4	<3.1	<3.2	<2.3
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	<2.8	<2.4	<3.3	<3.8	<2.5	<3.8	<3.4	<3.6	<2.5
Acetone	µg/kg	<8.9	<7.7	<10.7	<12.2	<7.9	<12.2	<11.1	<11.7	<8.1
Benzene	µg/kg	<0.59	<0.51	<0.71	<0.81	<0.53	<0.81	<0.74	<0.78	<0.54
Bromodichloromethane	µg/kg	<0.67	<0.59	<0.81	<0.92	<0.60	<0.92	<0.84	<0.88	<0.61
Bromoform	µg/kg	<2.7	<2.4	<3.3	<3.8	<2.5	<3.8	<3.4	<3.6	<2.5
Bromomethane (Methyl bromide)	µg/kg	<3.7	<3.2	<4.5	<5.1	<3.3	<5.1	<4.6	<4.9	<3.4
Carbon tetrachloride	µg/kg	<0.59	<0.52	4.2 J	20.6	5.7	8.7	7.6	10.7	2.8 J
Chlorobenzene	µg/kg	<0.64	<0.56	<0.77	<0.87	<0.57	<0.88	<0.79	<0.84	<0.58
Chloroethane	µg/kg	<1.6	<1.4	<2.0	<2.3	<1.5	<2.3	<2.1	<2.2	<1.5
Chloroform (Trichloromethane)	µg/kg	<0.83	4.9	5.5	9.4	8.7	10.6	8.4	10.2	6.1
Chloromethane (Methyl chloride)	µg/kg	<1.9	<1.6	<2.3	<2.6	<1.7	<2.6	<2.3	<2.5	<1.7
cis-1,2-Dichloroethene	µg/kg	<0.72	<0.63	<0.87	<0.99	<0.65	<1.0	<0.90	<0.95	<0.66
cis-1,3-Dichloropropene	µg/kg	<2.0	<1.7	<2.4	<2.7	<1.8	<2.8	<2.5	<2.6	<1.8
Dibromochloromethane	µg/kg	<0.22	<0.19	<0.26	<0.30	<0.19	<0.30	<0.27	<0.29	<0.20

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Location ID:	SB101B	SB101B	SB101B	SB101B	SB102B	SB102B	SB102B	SB102B	SB103B	
Sample Name:	SB101B-5	SB101B-15	SB101B-25	SB101B-36	SB102B-5	SB102B-15	SB102B-25	SB102B-30	SB103B-5	
Sample Date:	01/23/2018	01/23/2018	01/23/2018	01/23/2018	01/24/2018	01/24/2018	01/24/2018	01/24/2018	01/25/2018	
Depth:	5 ft bgs	15 ft bgs	25 ft bgs	36 ft bgs	5 ft bgs	15 ft bgs	25 ft bgs	30 ft bgs	5 ft bgs	
Parameters	Unit									
Volatile Organic Compounds										
Dichlorodifluoromethane (CFC-12)	µg/kg	<4.0	<3.5	<4.9	<5.5	<3.6	<5.6	<5.0	<5.3	<3.7
Ethylbenzene	µg/kg	<0.78	<0.68	<0.94	<1.1	<0.70	<1.1	<0.97	<1.0	<0.71
Hexachlorobutadiene	µg/kg	<2.8	<2.4	<3.4	<3.8	<2.5	<3.8	<3.5	<3.7	<2.5
m&p-Xylenes	µg/kg	<1.1	<0.98	<1.4	<1.5	<1.0	<1.5	<1.4	<1.5	<1.0
Methyl tert butyl ether (MTBE)	µg/kg	<0.63	<0.55	<0.76	<0.87	<0.57	<0.87	<0.79	<0.83	<0.58
Methylene chloride	µg/kg	<2.4	<2.1	<2.9	<3.3	<2.2	<3.3	<3.0	<3.2	<2.2
Naphthalene	µg/kg	<1.5	<1.3	<1.9	<2.1	<1.4	<2.1	<1.9	<2.0	<1.4
o-Xylene	µg/kg	<0.51	<0.44	<0.62	<0.70	<0.46	<0.70	<0.64	<0.67	<0.46
Styrene	µg/kg	<0.45	<0.39	<0.55	<0.62	<0.40	<0.62	<0.56	<0.59	<0.41
Tetrachloroethene	µg/kg	<0.55	<0.48	<0.67	<0.76	<0.49	<0.76	<0.69	<0.73	<0.50
Tetrahydrofuran	µg/kg	<9.7	<8.5	<11.8	<13.4	<8.7	<13.4	<12.1	<12.8	<8.9
Toluene	µg/kg	<1.2	<1.0	<1.4	<1.6	<1.0	<1.6	<1.5	<1.5	<1.1
trans-1,2-Dichloroethene	µg/kg	<0.75	<0.66	<0.91	<1.0	<0.67	<1.0	<0.94	<0.99	<0.69
trans-1,3-Dichloropropene	µg/kg	<0.78	<0.68	<0.94	<1.1	<0.70	<1.1	<0.97	<1.0	<0.71
Trichloroethene	µg/kg	<0.12	<0.10	<0.14	<0.16	<0.11	<0.16	<0.15	<0.16	<0.11
Trichlorofluoromethane (CFC-11)	µg/kg	<1.8	<1.6	<2.1	<2.4	<1.6	<2.4	<2.2	<2.3	<1.6
Trifluorotrichloroethane (CFC-113)	µg/kg	<0.77	<0.67	<0.93	<1.1	<0.69	<1.1	<0.96	<1.0	<0.70
Vinyl acetate	µg/kg	<2.1	<1.8	<2.5	<2.8	<1.8	<2.8	<2.6	<2.7	<1.9
Vinyl chloride	µg/kg	<1.0	<0.88	<1.2	<1.4	<0.90	<1.4	<1.3	<1.3	<0.92
General Chemistry										
Percent moisture	%	19.3	15.1	31.9	34.1	14.3	33.2	34.4	35.8	15.6

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Location ID:	SB103B	SB103B	SB103B	SB103B	SB104B	SB104B	SB104B	SB104B	
Sample Name:	SB103B-15	SB103B-22	SB103B-27	SB103B-27-FD	SB104B-5	SB104B-15	SB104B-22	SB104B-27	
Sample Date:	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	
Depth:	15 ft bgs	22 ft bgs	27 ft bgs	27 ft bgs Duplicate	5 ft bgs	15 ft bgs	22 ft bgs	27 ft bgs	
Parameters	Unit								
Volatile Organic Compounds									
1,1,1-Trichloroethane	µg/kg	<1.0	<1.0	<1.2 J	<1.1 J	<0.77	<1.1	<1.2	<1.0
1,1,2,2-Tetrachloroethane	µg/kg	<0.74	<0.73	<0.88 J	<0.77 J	<0.55	<0.77	<0.85	<0.72
1,1,2-Trichloroethane	µg/kg	<0.95	<0.93	<1.1 J	<0.99 J	<0.71	<0.99	<1.1	<0.92
1,1-Dichloroethane	µg/kg	<0.99	<0.96	<1.2 J	<1.0 J	<0.73	<1.0	<1.1	<0.95
1,1-Dichloroethene	µg/kg	<0.79	<0.77	<0.93 J	<0.81 J	<0.58	<0.81	<0.89	<0.76
1,2,4-Trichlorobenzene	µg/kg	<2.2	<2.2	<2.6 J	<2.3 J	<1.6	<2.3	<2.5	<2.1
1,2,4-Trimethylbenzene	µg/kg	<0.27	<0.26	<0.60 J	<0.51 J	<0.20	<0.42 J	<0.30	<0.26
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	<1.1	<1.1	<1.3 J	<1.1 J	<0.80	<1.1	<1.2	<1.0
1,2-Dichlorobenzene	µg/kg	<0.87	<0.85	<1.0 J	<0.90 J	<0.64	<0.90	<0.98	<0.84
1,2-Dichloroethane	µg/kg	<0.97	<0.95	<1.1 J	<1.0 J	<0.72	<1.0	<1.1	<0.94
1,3,5-Trimethylbenzene	µg/kg	<0.66	<0.65	<0.78 J	<0.68 J	<0.49	<0.69	<0.75	<0.64
1,3-Dichlorobenzene	µg/kg	<0.71	<0.70	<0.84 J	<0.74 J	<0.53	<0.74	<0.81	<0.69
1,4-Dichlorobenzene	µg/kg	<0.79	<0.78	<0.94 J	<0.82 J	<0.59	<0.82	<0.90	<0.77
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	<4.2	<4.1	<5.0 J	<4.4 J	<3.1	<4.4	<4.8	<4.1
2-Hexanone	µg/kg	<3.2	<3.1	<3.8 J	<3.3 J	<2.4	<3.3	<3.6	<3.1
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	<3.6	<3.5	<4.2 J	<3.7 J	<2.6	<3.7	<4.0	<3.4
Acetone	µg/kg	<11.4	<11.2	<13.5 J	<11.8 J	<8.5	<11.9	<13.0	<11.1
Benzene	µg/kg	<0.76	<0.75	<0.90 J	<0.79 J	<0.56	<0.79	<0.86	<0.74
Bromodichloromethane	µg/kg	<0.87	<0.85	<1.0 J	<0.90 J	<0.64	<0.90	<0.98	<0.84
Bromoform	µg/kg	<3.5	<3.5	<4.2 J	<3.7 J	<2.6	<3.7	<4.0	<3.4
Bromomethane (Methyl bromide)	µg/kg	<4.8	<4.7	<5.7 J	<5.0 J	<3.6	<5.0	<5.4	<4.6
Carbon tetrachloride	µg/kg	4.0 J	2.8 J	7.2 J	10.6 J	<0.57	13.7	4.5 J	7.2
Chlorobenzene	µg/kg	<0.82	<0.80	<0.97 J	<0.85 J	<0.61	<0.85	<0.93	<0.79
Chloroethane	µg/kg	<2.1	<2.1	<2.5 J	<2.2 J	<1.6	<2.2	<2.4	<2.1
Chloroform (Trichloromethane)	µg/kg	4.0 J	1.8 J	3.8 J	5.5 J	<0.80	5.1 J	4.1 J	3.6 J
Chloromethane (Methyl chloride)	µg/kg	<2.4	<2.4	<2.9 J	<2.5 J	<1.8	<2.5	<2.7	<2.3
cis-1,2-Dichloroethene	µg/kg	<0.93	<0.92	<1.1 J	<0.97 J	<0.69	<0.97	<1.1	<0.90
cis-1,3-Dichloropropene	µg/kg	<2.6	<2.5	<3.1 J	<2.7 J	<1.9	<2.7	<2.9	<2.5
Dibromochloromethane	µg/kg	<0.28	<0.27	<0.33 J	<0.29 J	<0.21	<0.29	<0.32	<0.27

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Location ID:	SB103B	SB103B	SB103B	SB103B	SB104B	SB104B	SB104B	SB104B	
Sample Name:	SB103B-15	SB103B-22	SB103B-27	SB103B-27-FD	SB104B-5	SB104B-15	SB104B-22	SB104B-27	
Sample Date:	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	01/25/2018	
Depth:	15 ft bgs	22 ft bgs	27 ft bgs	27 ft bgs Duplicate	5 ft bgs	15 ft bgs	22 ft bgs	27 ft bgs	
Parameters	Unit								
Volatile Organic Compounds									
Dichlorodifluoromethane (CFC-12)	µg/kg	<5.2	<5.1	<6.2 J	<5.4 J	<3.9	<5.4	<5.9	<5.0
Ethylbenzene	µg/kg	<1.0	<0.99	<1.2 J	<1.0 J	<0.75	<1.0	<1.1	<0.97
Hexachlorobutadiene	µg/kg	<3.6	<3.5	<4.2 J	<3.7 J	<2.7	<3.7	<4.1	<3.5
m&p-Xylenes	µg/kg	<1.4	<1.4	<1.7 J	<1.5 J	<1.1	<1.5	<1.6	<1.4
Methyl tert butyl ether (MTBE)	µg/kg	<0.82	<0.80	<0.96 J	<0.84 J	<0.61	<0.85	<0.93	<0.79
Methylene chloride	µg/kg	<3.1	<3.1	<3.7 J	<3.2 J	<2.3	<3.2	<3.6	<3.0
Naphthalene	µg/kg	<2.0	<1.9	<2.3 J	<2.0 J	<1.5	<2.1	<2.2	<1.9
o-Xylene	µg/kg	<0.66	<0.64	<0.78 J	<0.68 J	<0.49	<0.68	<0.75	<0.64
Styrene	µg/kg	<0.58	<0.57	<0.69 J	<0.60 J	<0.43	<0.60	<0.66	<0.56
Tetrachloroethene	µg/kg	<0.71	<0.70	<0.84 J	<0.74 J	<0.53	<0.74	<0.81	<0.69
Tetrahydrofuran	µg/kg	<12.6	<12.3	<14.8 J	<13.0 J	<9.3	<13.0	<14.3	<12.2
Toluene	µg/kg	<1.5	<1.5	<1.8 J	<1.6 J	<1.1	<1.6	<1.7	<1.5
trans-1,2-Dichloroethene	µg/kg	<0.97	<0.95	<1.1 J	<1.0 J	<0.72	<1.0	<1.1	<0.94
trans-1,3-Dichloropropene	µg/kg	<1.0	<0.99	<1.2 J	<1.0 J	<0.75	<1.0	<1.1	<0.98
Trichloroethene	µg/kg	<0.15	<0.15	<0.18 J	<0.16 J	<0.11	<0.16	<0.17	<0.15
Trichlorofluoromethane (CFC-11)	µg/kg	<2.3	<2.2	<2.7 J	<2.4 J	<1.7	<2.4	<2.6	<2.2
Trifluorotrchloroethane (CFC-113)	µg/kg	<0.99	<0.97	<1.2 J	<1.0 J	<0.74	<1.0	<1.1	<0.96
Vinyl acetate	µg/kg	<2.7	<2.6	<3.1 J	<2.7 J	<2.0	<2.7	<3.0	<2.6
Vinyl chloride	µg/kg	<1.3	<1.3	<1.5 J	<1.3 J	<0.96	<1.3	<1.5	<1.3
General Chemistry									
Percent moisture	%	31.5	35.8	36.8	37.2	17.4	34.5	30.9	30.6

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground level
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	1,2,4-Trimethylbenzene	02/02/2018	0.29 J	SB103B-27	0.60 J	<0.60 J	µg/kg
				SB103B-27-FD	0.51 J	<0.51 J	µg/kg
				SB104B-15	0.42 J	<0.42 J	µg/kg

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 5

Qualified Sample Data Due to Outlying of Surrogate Recoveries
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Parameter	Sample ID	Surrogate	Surrogate	Control Limits	Analyte	Qualified	Units
			% Recovery	% Recovery		Result	
VOCs	SB103B-27	1,2-Dichloroethane-d4	65	75-126	1,1,1-Trichloroethane	<1.2 J	µg/kg
					1,1,2,2-Tetrachloroethane	<0.88 J	µg/kg
					1,1,2-Trichloroethane	<1.1 J	µg/kg
					1,1-Dichloroethane	<1.2 J	µg/kg
					1,1-Dichloroethene	<0.93 J	µg/kg
					1,2,4-Trichlorobenzene	<2.6 J	µg/kg
					1,2,4-Trimethylbenzene	<0.60 J	µg/kg
					1,2-Dibromoethane (Ethylene dibromide)	<1.3 J	µg/kg
					1,2-Dichlorobenzene	<1.0 J	µg/kg
					1,2-Dichloroethane	<1.1 J	µg/kg
					1,3,5-Trimethylbenzene	<0.78 J	µg/kg
					1,3-Dichlorobenzene	<0.84 J	µg/kg
					1,4-Dichlorobenzene	<0.94 J	µg/kg
					2-Butanone (Methyl ethyl ketone) (MEK)	<5.0 J	µg/kg
					2-Hexanone	<3.8 J	µg/kg
					4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<4.2 J	µg/kg
					Acetone	<13.5 J	µg/kg
					Benzene	<0.90 J	µg/kg
					Bromodichloromethane	<1.0 J	µg/kg
					Bromoform	<4.2 J	µg/kg
Bromomethane (Methyl bromide)	<5.7 J	µg/kg					
Carbon tetrachloride	7.2 J	µg/kg					

Table 5

Qualified Sample Data Due to Outlying of Surrogate Recoveries
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Parameter	Sample ID	Surrogate	Surrogate	Control Limits	Analyte	Qualified	Units
			% Recovery	% Recovery		Result	
VOCs	SB103B-27	1,2-Dichloroethane-d4	65	75-126	Chlorobenzene	<0.97 J	µg/kg
					Chloroethane	<2.5 J	µg/kg
					Chloroform (Trichloromethane)	3.8 J	µg/kg
					Chloromethane (Methyl chloride)	<2.9 J	µg/kg
					cis-1,2-Dichloroethene	<1.1 J	µg/kg
					cis-1,3-Dichloropropene	<3.1 J	µg/kg
					Dibromochloromethane	<0.33 J	µg/kg
					Dichlorodifluoromethane (CFC-12)	<6.2 J	µg/kg
					Ethylbenzene	<1.2 J	µg/kg
					Hexachlorobutadiene	<4.2 J	µg/kg
					m&p-Xylenes	<1.7 J	µg/kg
					Methyl tert butyl ether (MTBE)	<0.96 J	µg/kg
					Methylene chloride	<3.7 J	µg/kg
					Naphthalene	<2.3 J	µg/kg
					o-Xylene	<0.78 J	µg/kg
					Styrene	<0.69 J	µg/kg
					Tetrachloroethene	<0.84 J	µg/kg
					Tetrahydrofuran	<14.8 J	µg/kg
					Toluene	<1.8 J	µg/kg
					trans-1,2-Dichloroethene	<1.1 J	µg/kg
trans-1,3-Dichloropropene	<1.2 J	µg/kg					
Trichloroethene	<0.18 J	µg/kg					

Table 5

Qualified Sample Data Due to Outlying of Surrogate Recoveries
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Parameter	Sample ID	Surrogate	Surrogate	Control Limits	Analyte	Qualified	Units
			% Recovery	% Recovery		Result	
VOCs	SB103B-27	1,2-Dichloroethane-d4	65	75-126	Trichlorofluoromethane (CFC-11)	<2.7 J	µg/kg
					Trifluorotrichloroethane (CFC-113)	<1.2 J	µg/kg
					Vinyl acetate	<3.1 J	µg/kg
					Vinyl chloride	<1.5 J	µg/kg
	SB103B-27-FD	1,2-Dichloroethane-d4	48	75-126	1,1,1-Trichloroethane	<1.1 J	µg/kg
					1,1,2,2-Tetrachloroethane	<0.77 J	µg/kg
					1,1,2-Trichloroethane	<0.99 J	µg/kg
					1,1-Dichloroethane	<1.0 J	µg/kg
					1,1-Dichloroethene	<0.81 J	µg/kg
					1,2,4-Trichlorobenzene	<2.3 J	µg/kg
					1,2,4-Trimethylbenzene	<0.51 J	µg/kg
					1,2-Dibromoethane (Ethylene dibromide)	<1.1 J	µg/kg
					1,2-Dichlorobenzene	<0.90 J	µg/kg
					1,2-Dichloroethane	<1.0 J	µg/kg
					1,3,5-Trimethylbenzene	<0.68 J	µg/kg
					1,3-Dichlorobenzene	<0.74 J	µg/kg
					1,4-Dichlorobenzene	<0.82 J	µg/kg
					2-Butanone (Methyl ethyl ketone) (MEK)	<4.4 J	µg/kg
					2-Hexanone	<3.3 J	µg/kg
					4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<3.7 J	µg/kg
					Acetone	<11.8 J	µg/kg

Table 5

Qualified Sample Data Due to Outlying of Surrogate Recoveries
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018

Parameter	Sample ID	Surrogate	Surrogate	Control Limits	Analyte	Qualified	Units
			% Recovery	% Recovery		Result	
VOCs	SB103B-27-FD	1,2-Dichloroethane-d4	48	75-126	Benzene	<0.79 J	µg/kg
					Bromodichloromethane	<0.90 J	µg/kg
					Bromoform	<3.7 J	µg/kg
					Bromomethane (Methyl bromide)	<5.0 J	µg/kg
					Carbon tetrachloride	10.6 J	µg/kg
					Chlorobenzene	<0.85 J	µg/kg
					Chloroethane	<2.2 J	µg/kg
					Chloroform (Trichloromethane)	5.5 J	µg/kg
					Chloromethane (Methyl chloride)	<2.5 J	µg/kg
					cis-1,2-Dichloroethene	<0.97 J	µg/kg
					cis-1,3-Dichloropropene	<2.7 J	µg/kg
					Dibromochloromethane	<0.29 J	µg/kg
					Dichlorodifluoromethane (CFC-12)	<5.4 J	µg/kg
					Ethylbenzene	<1.0 J	µg/kg
					Hexachlorobutadiene	<3.7 J	µg/kg
					m&p-Xylenes	<1.5 J	µg/kg
					Methyl tert butyl ether (MTBE)	<0.84 J	µg/kg
					Methylene chloride	<3.2 J	µg/kg
					Naphthalene	<2.0 J	µg/kg
					o-Xylene	<0.68 J	µg/kg
Styrene	<0.60 J	µg/kg					
Tetrachloroethene	<0.74 J	µg/kg					

Table 5

**Qualified Sample Data Due to Outlying of Surrogate Recoveries
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
January 2018**

Parameter	Sample ID	Surrogate	Surrogate % Recovery	<u>Control Limits</u> % Recovery	Analyte	Qualified Result	Units
VOCs	SB103B-27-FD	1,2-Dichloroethane-d4	48	75-126	Tetrahydrofuran	<13.0 J	µg/kg
					Toluene	<1.6 J	µg/kg
					trans-1,2-Dichloroethene	<1.0 J	µg/kg
					trans-1,3-Dichloropropene	<1.0 J	µg/kg
					Trichloroethene	<0.16 J	µg/kg
					Trichlorofluoromethane (CFC-11)	<2.4 J	µg/kg
					Trifluorotrchloroethane (CFC-113)	<1.0 J	µg/kg
					Vinyl acetate	<2.7 J	µg/kg
					Vinyl chloride	<1.3 J	µg/kg

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

March 1, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/409-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10401087
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
August 2017**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Phase II Remedial Investigation at the Cenex Harvest Lease Site in Freeman, Washington during August 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008 subsequently referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criterion and sample preservation requirements for the analysis are summarized in the method. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding time.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS/LCSD contained all analytes of interest. All LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and.

6. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.



7. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3.

8. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2017

Analysis/Parameters

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	VOCs	Comments
EW6U-GW-082517	EW6U	Water	08/25/2017	13:24	X	
EW9U-GW-082517	EW9U	Water	08/25/2017	13:35	X	
Trip Blank	--	Water	08/25/2017	--	X	Trip Blank

Notes:

VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

Analytical Methods
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water

Notes:

- ⁽¹⁾ - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2017

	Location ID:	EW6U	EW9U
	Sample Name:	EW6U-GW-082517	EW9U-GW-082517
	Sample Date:	08/25/2017	08/25/2017
Parameters	Unit		
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20
2-Hexanone	µg/L	2.8 J	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	3.7 J
Acetone	µg/L	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16
Bromodichloromethane	µg/L	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	4.3
Carbon tetrachloride	µg/L	15.3	820
Chlorobenzene	µg/L	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2017

	Location ID:	EW6U	EW9U
	Sample Name:	EW6U-GW-082517	EW9U-GW-082517
	Sample Date:	08/25/2017	08/25/2017
Parameters	Unit		
Volatile Organic Compounds			
Chloroform (Trichloromethane)	µg/L	2.2	50.8
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3
Toluene	µg/L	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13
Trifluorotrichloroethane (CFC-113)	µg/L	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24

Notes:

< - Not detected at the associated reporting limit

J - Estimated concentration



Memorandum

March 1, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/410-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10419905
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
February 2018**

1. Introduction

This document details a reduced validation of analytical results for soil samples collected in support of the Phase II Remedial Investigation at the Cenex Harvest Lease Site in Freeman, Washington during February 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS/LCSD contained all analytes of interest. All LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a



high chloroethane recovery and a few high RPDs. The associated non-detect results were not impacted and the associated sample detection was qualified as estimated due to variability (see Table 4).

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of chloroform present at a low concentration. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

8. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3.

All soil results were reported on a dry weight basis.

9. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

**Sample Collection and Analysis Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
						Moisture	VOCs	
Sump-3-020618	CHF Grain Facility Sump Area	Soil	3	02/06/2018	13:45:00	X	X	DUP
Sump-O-020618	CHF Grain Facility Sump Area	Soil	0	02/06/2018	13:35:00	X	X	
Trip Blank	--	Soil	--	02/06/2018	--		X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
DUP - Laboratory Duplicate
VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

Analytical Methods
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Table 3

Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Location ID:	CHF Grain Facility Sump Area	CHF Grain Facility Sump Area
Sample Name:	Sump-3-020618	Sump-O-020618
Sample Date:	02/06/2018	02/06/2018
Depth:	3 ft bgs	0 ft bgs

Parameters	Unit		
Volatile Organic Compounds			
1,1,1-Trichloroethane	µg/kg	<0.68	<0.92
1,1,1,2-Tetrachloroethane	µg/kg	<0.49	<0.67
1,1,1,2-Trichloroethane	µg/kg	<0.63	<0.85
1,1-Dichloroethane	µg/kg	<0.65	<0.88
1,1-Dichloroethene	µg/kg	<0.52	<0.70
1,2,4-Trichlorobenzene	µg/kg	<1.5	<2.0
1,2,4-Trimethylbenzene	µg/kg	<0.18	<0.24
1,2-Dibromoethane (Ethylene dibromide)	µg/kg	<0.71	<0.97
1,2-Dichlorobenzene	µg/kg	<0.57	<0.78
1,2-Dichloroethane	µg/kg	<0.64	<0.87
1,3,5-Trimethylbenzene	µg/kg	<0.44	<0.59
1,3-Dichlorobenzene	µg/kg	<0.47	<0.64
1,4-Dichlorobenzene	µg/kg	<0.52	<0.71
2-Butanone (Methyl ethyl ketone) (MEK)	µg/kg	<2.8	<3.8
2-Hexanone	µg/kg	2.6 J	<2.9
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/kg	<2.4	<3.2
Acetone	µg/kg	<7.6	<10.3
Benzene	µg/kg	<0.50	<0.68
Bromodichloromethane	µg/kg	<0.57	<0.78
Bromoform	µg/kg	<2.3	<3.2
Bromomethane (Methyl bromide)	µg/kg	<3.2	<4.3
Carbon tetrachloride	µg/kg	<0.50	<0.68
Chlorobenzene	µg/kg	<0.54	<0.74
Chloroethane	µg/kg	<1.4	<1.9
Chloroform (Trichloromethane)	µg/kg	<0.71	<0.97
Chloromethane (Methyl chloride)	µg/kg	<1.6	<2.2
cis-1,2-Dichloroethene	µg/kg	<0.62	<0.84
cis-1,3-Dichloropropene	µg/kg	<1.7	<2.3
Dibromochloromethane	µg/kg	<0.19	<0.25
Dichlorodifluoromethane (CFC-12)	µg/kg	<3.4	<4.7
Ethylbenzene	µg/kg	<0.67	<0.90
Hexachlorobutadiene	µg/kg	<2.4	<3.2
m&p-Xylenes	µg/kg	<0.95	<1.3
Methyl tert butyl ether (MTBE)	µg/kg	<0.54	<0.73
Methylene chloride	µg/kg	<2.1	<2.8
Naphthalene	µg/kg	<1.3	<1.8
o-Xylene	µg/kg	<0.43	<0.59
Styrene	µg/kg	<0.38	<0.52
Tetrachloroethene	µg/kg	<0.47	<0.64
Tetrahydrofuran	µg/kg	<8.3	<11.3
Toluene	µg/kg	<1.0	<1.4

Table 3

**Analytical Results Summary
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Location ID:	CHF Grain Facility Sump Area	CHF Grain Facility Sump Area
Sample Name:	Sump-3-020618	Sump-O-020618
Sample Date:	02/06/2018	02/06/2018
Depth:	3 ft bgs	0 ft bgs

Parameters	Unit		
Volatile Organic Compounds			
trans-1,2-Dichloroethene	µg/kg	<0.64	<0.87
trans-1,3-Dichloropropene	µg/kg	<0.67	<0.90
Trichloroethene	µg/kg	<0.10	<0.14
Trichlorofluoromethane (CFC-11)	µg/kg	<1.5	<2.1
Trifluorotrchloroethane (CFC-113)	µg/kg	<0.66	<0.89
Vinyl acetate	µg/kg	<1.8	<2.4
Vinyl chloride	µg/kg	<0.86	<1.2
General Chemistry			
Percent moisture	%	15.2	26.0

Notes:

< - Not detected at the associated reporting limit
ft gs - Feet below ground surface
J - Estimated concentration

Table 4

**Qualified Sample Results Due to Outlying LCS/LCSD Results
Phase II Remedial Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits		Associated Sample ID	Qualified Result	Units
						% Recovery	RPD			
VOCs	2-Hexanone	02/09/2018	106	83	24	71-125	20	Sump-3-020618	2.6 J	µg/kg

Notes:

- LCS - Laboratory Control Sample
- LCSD - Laboratory Control Sample Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- VOCs - Volatile Organic Compounds



Memorandum

March 2, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/411-NF Tel: 206-914-3141

cc: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10420077
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
February 2018**

1. Introduction

This document details a reduced validation of analytical results for air samples collected in support of the Soil Vapor and Air Sampling at the Cenex Harvest Lease Site in Freeman, Washington during February 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 2 and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008 subsequently referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criterion for the analysis is presented in the method. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 4).

4. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy with the exception of two high recoveries. The associated non-detect results were not impacted and the associated sample detections were qualified as estimated due to the implied high bias (see Table 5).

5. Field QA/QC Samples

The field QA/QC consisted of one field duplicate sample set.

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with a few exceptions. The associated sample results and their duplicates were qualified as estimated due to variability (see Table 6).

6. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3.



Two sample results were reported outside of the upper end of the instrument calibration range and were qualified as estimated (see Table 7).

7. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Analysis/Parameters

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	VOCs	Comments
SV101A-5	SB101A	Air	5	02/07/2018	11:50	X	
SV101B-25	SB101B	Air	25	02/07/2018	11:22	X	
DUP-1	SB101B	Air	25	02/07/2018	--	X	FD (SV101B-25)
SV102A-5	SB102A	Air	5	02/07/2018	11:58	X	
SV102A-15	SB102A	Air	15	02/07/2018	09:18	X	
SV103A-5	SB103A	Air	5	02/07/2018	09:16	X	
SV104A-5	SB104A	Air	5	02/07/2018	09:10	X	
SV104A-15	SB104A	Air	15	02/07/2018	09:09	X	
SV104B-22	SB104B	Air	22	02/07/2018	09:11	X	
SV104B-27	SB104B	Air	27	02/07/2018	09:11	X	

Notes:

- ft. bgs. - Feet below ground surface
FD - Field Duplicate sample of sample in parenthesis
VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

Analytical Methods
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	TO-15 ⁽¹⁾	Air

Notes:

- ⁽¹⁾ - EPA Method TO-15 - "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

	Location ID:	SB101A	SB101B	SB101B	SB102A	SB102A
	Sample Name:	SV101A-5	SV101B-25	DUP-1	SV102A-5	SV102A-15
	Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
	Depth:	5 ft bgs	25 ft bgs	25 ft bgs Duplicate	5 ft bgs	15 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/m3	0.075 J	0.12	0.13	<0.077	0.093 J
1,1,1,2-Tetrachloroethane	µg/m3	1.8	1.9	1.9	2.0	1.8
1,1,2-Trichloroethane	µg/m3	<0.047	<0.045	<0.045	<0.083	<0.045
1,1-Dichloroethane	µg/m3	0.058 J	0.087	0.077	0.088 J	0.056 J
1,1-Dichloroethene	µg/m3	<0.035	0.36 J	<0.034 J	<0.063	<0.034
1,2,4-Trichlorobenzene	µg/m3	<1.7	<1.6	<1.6	<3.0	<1.6
1,2,4-Trimethylbenzene	µg/m3	<0.30	<0.29	<0.29	<0.53	<0.29
1,2-Dibromoethane (Ethylene dibromide)	µg/m3	<0.071 J	<0.063	<0.063	<0.12	<0.063
1,2-Dichlorobenzene	µg/m3	<0.57	<0.55	<0.55	<1.0	<0.55
1,2-Dichloroethane	µg/m3	0.079	0.11	0.11	0.099 J	0.081
1,2-Dichloropropane	µg/m3	0.074 J	0.070 J	<0.021	<0.038	<0.021
1,2-Dichlorotetrafluoroethane (CFC 114)	µg/m3	<0.77	<0.74	<0.74	<1.4	<0.74
1,3,5-Trimethylbenzene	µg/m3	<0.72	<0.69	<0.69	<1.3	<0.69
1,3-Butadiene	µg/m3	<0.038	<0.036	<0.036	<0.067	<0.036
1,3-Dichlorobenzene	µg/m3	<0.82	<0.78	<0.78	<1.4	<0.78
1,4-Dichlorobenzene	µg/m3	<0.38	<0.37	<0.37	<0.68	<0.37
2-Butanone (Methyl ethyl ketone) (MEK)	µg/m3	2.0 J	3.2 J	4.9 J	<0.63	3.0 J
2-Hexanone	µg/m3	<1.1	<1.0	<1.0	<1.9	<1.0
4-Ethyl toluene	µg/m3	<0.37	<0.36	<0.36	<0.66	<0.36
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/m3	<0.62	4.1 J	4.2 J	<1.1	<0.60
Acetone	µg/m3	<2.6	<2.5 J	69.8 J	49.9	26.9
Benzene	µg/m3	1.0	<0.027	<0.027	1.3	0.65
Bromodichloromethane	µg/m3	<0.049	<0.047	<0.047	0.097 J	<0.047
Bromoform	µg/m3	<1.2	<1.2	<1.2	<2.1	<1.2
Bromomethane (Methyl bromide)	µg/m3	<0.36	<0.35	<0.35	<0.64	<0.35

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

	Location ID:	SB101A	SB101B	SB101B	SB102A	SB102A
	Sample Name:	SV101A-5	SV101B-25	DUP-1	SV102A-5	SV102A-15
	Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
	Depth:	5 ft bgs	25 ft bgs	25 ft bgs Duplicate	5 ft bgs	15 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
Carbon disulfide	µg/m3	46.5	199 J	102 J	41.4	32.9
Carbon tetrachloride	µg/m3	8.7	25700	28000	903	3500
Chlorobenzene	µg/m3	<0.31	<0.30	<0.30	<0.55	<0.30
Chloroethane	µg/m3	<0.36	<0.34	<0.34	<0.63	<0.34
Chloroform (Trichloromethane)	µg/m3	3.4 J	4170 J	2220 J	509	1500
Chloromethane (Methyl chloride)	µg/m3	<0.23	<0.23	<0.23	<0.42	<0.23
cis-1,2-Dichloroethene	µg/m3	0.062 J	0.037 J	<0.024	0.052 J	0.032 J
cis-1,3-Dichloropropene	µg/m3	<0.077 J	<0.046	<0.046	<0.091 J	<0.060 J
Cyclohexane	µg/m3	31.1	12.2 J	<0.38 J	11.1	<0.38
Dibromochloromethane	µg/m3	<0.092 J	<0.062 J	<0.060 J	<0.10 J	<0.057 J
Dichlorodifluoromethane (CFC-12)	µg/m3	<0.73	1.4 J	1.6 J	5.4	6.2
Ethanol	µg/m3	2.5 J	8.6 J	13.7 J	13.7 J	2.6 J
Ethyl acetate	µg/m3	<0.34	<0.33	<0.33	<0.61	<0.33
Ethylbenzene	µg/m3	9.9	7.8	7.9	15.9	12.1
Hexachlorobutadiene	µg/m3	<1.5	<1.5	<1.5	<2.7	<1.5
Hexane	µg/m3	2.9	3.5	4.0	3.9	4.1
Isopropyl alcohol	µg/m3	<2.2	<2.1	<2.1	<3.9	<2.1
Isopropyl benzene	µg/m3	<0.58	<0.55	1.3 J	<1.0	<0.55
m&p-Xylenes	µg/m3	44.4	33.1	34.0	75.9	55.4
Methyl tert butyl ether (MTBE)	µg/m3	<1.2	<1.1	<1.1	<2.1	<1.1
Methylene chloride	µg/m3	6.8	<2.6	<2.6	15.6	4.7 J
N-Heptane	µg/m3	3.5	6.0	6.7	5.9	6.7
Naphthalene	µg/m3	3.1 J	<1.0	<1.0	<1.9	<1.0
o-Xylene	µg/m3	14.9	14.6	14.3	16.7	12.7
Propylene (propene)	µg/m3	<0.27	<0.26	<0.26	35.4	19.8

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Location ID:	SB101A	SB101B	SB101B	SB102A	SB102A
Sample Name:	SV101A-5	SV101B-25	DUP-1	SV102A-5	SV102A-15
Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
Depth:	5 ft bgs	25 ft bgs	25 ft bgs Duplicate	5 ft bgs	15 ft bgs

Parameters	Unit					
Volatile Organic Compounds						
Styrene	µg/m3	25.7	27.2	28.0	17.3	15.1
Tetrachloroethene	µg/m3	54.6	112	115	73.8	73.6
Tetrahydrofuran	µg/m3	0.94 J	<0.46 J	2.9 J	1.3 J	1.4
Toluene	µg/m3	202	182	185	331	872
trans-1,2-Dichloroethene	µg/m3	<0.037	<0.035	<0.035	0.10 J	0.074
trans-1,3-Dichloropropene	µg/m3	<0.049	<0.047	<0.047	<0.087	<0.077 J
Trichloroethene	µg/m3	0.30	0.21	0.23	0.29	0.27
Trichlorofluoromethane (CFC-11)	µg/m3	2.1	<0.70 J	8.0 J	13.6	20.8
Trifluorotrchloroethane (CFC-113)	µg/m3	0.82 J	<0.62	<0.62	<1.1	<0.62
Vinyl acetate	µg/m3	<0.29	<0.28	<0.28	3.3	<0.28
Vinyl chloride	µg/m3	0.16	<0.043	0.072	<0.079	<0.043

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

	Location ID:	SB103A	SB104A	SB104A	SB104B	SB104B
	Sample Name:	SV103A-5	SV104A-5	SV104A-15	SV104B-22	SV104B-27
	Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
	Depth:	5 ft bgs	5 ft bgs	15 ft bgs	22 ft bgs	27 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/m3	0.056 J	0.042 J	0.066 J	0.18	0.27
1,1,1,2-Tetrachloroethane	µg/m3	0.76	<0.060	1.7	<0.063	1.5
1,1,2-Trichloroethane	µg/m3	<0.047	<0.041	<0.040	<0.044	<0.043
1,1-Dichloroethane	µg/m3	0.070 J	<0.023	0.040 J	0.11	0.13
1,1-Dichloroethene	µg/m3	0.46	0.040 J	<0.030	0.071	0.073
1,2,4-Trichlorobenzene	µg/m3	<1.7	<1.5	<1.4	<1.6	<1.5
1,2,4-Trimethylbenzene	µg/m3	<0.30	<0.27	<0.26	<0.28	<0.28
1,2-Dibromoethane (Ethylene dibromide)	µg/m3	<0.066	<0.058	<0.056	<0.062	<0.061
1,2-Dichlorobenzene	µg/m3	<0.57	<0.51	<0.49	<0.53	<0.52
1,2-Dichloroethane	µg/m3	0.11	0.055 J	0.070	0.097	0.11
1,2-Dichloropropane	µg/m3	0.075 J	0.049 J	<0.018	<0.020	<0.020
1,2-Dichlorotetrafluoroethane (CFC 114)	µg/m3	<0.77	<0.69	<0.66	<0.72	<0.71
1,3,5-Trimethylbenzene	µg/m3	<0.72	<0.64	<0.61	<0.68	<0.66
1,3-Butadiene	µg/m3	<0.038	<0.033	<0.032	<0.035	<0.035
1,3-Dichlorobenzene	µg/m3	<0.82	<0.72	<0.69	<0.76	<0.75
1,4-Dichlorobenzene	µg/m3	<0.38	<0.34	<0.33	<0.36	<0.35
2-Butanone (Methyl ethyl ketone) (MEK)	µg/m3	2.6 J	<0.31	2.4 J	3.4 J	4.6 J
2-Hexanone	µg/m3	<1.1	<0.95	<0.91	<1.0	<0.99
4-Ethyl toluene	µg/m3	<0.37	<0.33	<0.32	<0.35	2.0
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/m3	<0.62	<0.55	1.3 J	4.4 J	6.0 J
Acetone	µg/m3	91.7	40.5	<2.2	36.5	<2.4
Benzene	µg/m3	<0.028	1.3	1.8	<0.026	<0.026
Bromodichloromethane	µg/m3	0.086 J	0.10 J	0.10	0.18	0.16
Bromoform	µg/m3	<1.2	<1.1	<1.0	<1.1	<1.1
Bromomethane (Methyl bromide)	µg/m3	<0.36	<0.32	<0.31	<0.34	<0.33

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

	Location ID:	SB103A	SB104A	SB104A	SB104B	SB104B
	Sample Name:	SV103A-5	SV104A-5	SV104A-15	SV104B-22	SV104B-27
	Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
	Depth:	5 ft bgs	5 ft bgs	15 ft bgs	22 ft bgs	27 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
Carbon disulfide	µg/m3	17.6	17.6	46.7	42.5	46.4
Carbon tetrachloride	µg/m3	2160	281	1850	12100	19700
Chlorobenzene	µg/m3	<0.31	<0.28	<0.27	<0.29	<0.29
Chloroethane	µg/m3	<0.36	<0.32	<0.30	<0.33	<0.33
Chloroform (Trichloromethane)	µg/m3	2000	141	996	840	1320
Chloromethane (Methyl chloride)	µg/m3	<0.23	<0.21	<0.20	<0.22	<0.22
cis-1,2-Dichloroethene	µg/m3	0.033 J	0.030 J	0.032 J	0.031 J	0.041 J
cis-1,3-Dichloropropene	µg/m3	<0.054 J	<0.056 J	<0.059 J	<0.071 J	<0.073 J
Cyclohexane	µg/m3	<0.40	57.2	13.0	4.7	<0.37
Dibromochloromethane	µg/m3	<0.062 J	<0.074 J	<0.080 J	<0.058 J	<0.058 J
Dichlorodifluoromethane (CFC-12)	µg/m3	5.7	5.0	2.9	7.0	8.6
Ethanol	µg/m3	22.6 J	<0.72	5.0 J	9.2 J	6.7 J
Ethyl acetate	µg/m3	<0.34	<0.30	<0.29	<0.32	<0.32
Ethylbenzene	µg/m3	2.4	8.3	11.4	7.6	7.7
Hexachlorobutadiene	µg/m3	<1.5	<1.3	<1.3	<1.4	<1.4
Hexane	µg/m3	20.7 J	2.8	4.5	9.1	10.2
Isopropyl alcohol	µg/m3	8.6	18.3	<1.9	<2.0	<2.0
Isopropyl benzene	µg/m3	<0.58	1.9 J	2.2 J	0.61 J	<0.53
m&p-Xylenes	µg/m3	11.2	35.7	50.3	25.0	25.1
Methyl tert butyl ether (MTBE)	µg/m3	<1.2	<1.0	<0.99	<1.1	2.7 J
Methylene chloride	µg/m3	<71.3	3.5 J	<2.3	3.8 J	<2.4
N-Heptane	µg/m3	5.6	2.7	4.4	9.2	10.5
Naphthalene	µg/m3	<1.0	<0.93	<0.89	<0.98	<0.96
o-Xylene	µg/m3	4.6	17.4	20.4	9.6	8.8
Propylene (propene)	µg/m3	35.6	25.7	1850	12.9	<0.25

Table 3

**Analytical Results Summary
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Location ID:	SB103A	SB104A	SB104A	SB104B	SB104B
Sample Name:	SV103A-5	SV104A-5	SV104A-15	SV104B-22	SV104B-27
Sample Date:	02/07/2018	02/07/2018	02/07/2018	02/07/2018	02/07/2018
Depth:	5 ft bgs	5 ft bgs	15 ft bgs	22 ft bgs	27 ft bgs

Parameters	Unit	SB103A	SB104A	SB104A	SB104B	SB104B
Volatile Organic Compounds						
Styrene	µg/m3	7.8	26.8	37.0	12.7	12.1
Tetrachloroethene	µg/m3	29.3	6.6	26.6	57.6	53.1
Tetrahydrofuran	µg/m3	<0.48	<0.42	<0.41	3.5	4.0
Toluene	µg/m3	101	146	184	160	156
trans-1,2-Dichloroethene	µg/m3	0.061 J	<0.033	0.063	<0.034	0.10
trans-1,3-Dichloropropene	µg/m3	<0.049	<0.069 J	<0.042	<0.046	<0.064 J
Trichloroethene	µg/m3	0.17	0.24	0.33	0.26	0.30
Trichlorofluoromethane (CFC-11)	µg/m3	12.8	3.2	5.0	55.0	78.5
Trifluorotrchloroethane (CFC-113)	µg/m3	<0.65	<0.57	<0.55	<0.61	<0.59
Vinyl acetate	µg/m3	<0.29	<0.26	<0.25	<0.27	<0.27
Vinyl chloride	µg/m3	0.072	<0.040	<0.038	<0.042	<0.041

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units			
VOCs	1,2-Dibromoethane (Ethylene dibromide)	02/15/2018	0.040 J	SV101A-5	0.071 J	<0.071 J	µg/m3			
	cis-1,3-Dichloropropene	02/15/2018	0.036 J	SV104A-5	0.056 J	<0.056 J	µg/m3			
				SV104A-15	0.059 J	<0.059 J	µg/m3			
				SV104B-22	0.071 J	<0.071 J	µg/m3			
				SV104B-27	0.073 J	<0.073 J	µg/m3			
				SV103A-5	0.054 J	<0.054 J	µg/m3			
				SV102A-15	0.060 J	<0.060 J	µg/m3			
				SV101A-5	0.077 J	<0.077 J	µg/m3			
				SV102A-5	0.091 J	<0.091 J	µg/m3			
				Dibromochloromethane	02/15/2018	0.042 J	SV104A-5	0.074 J	<0.074 J	µg/m3
							SV104A-15	0.080 J	<0.080 J	µg/m3
	SV104B-22	0.058 J	<0.058 J				µg/m3			
	SV104B-27	0.058 J	<0.058 J				µg/m3			
	SV103A-5	0.062 J	<0.062 J				µg/m3			
	SV102A-15	0.057 J	<0.057 J				µg/m3			
	SV101B-25	0.062 J	<0.062 J				µg/m3			
	SV101A-5	0.092 J	<0.092 J				µg/m3			
	SV102A-5	0.10 J	<0.10 J	µg/m3						
		DUP-1	0.060 J	<0.060 J	µg/m3					

Table 4

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	trans-1,3-Dichloropropene	02/15/2018	0.041 J	SV104A-5	0.069 J	<0.069 J	µg/m3
				SV104B-27	0.064 J	<0.064 J	µg/m3
				SV102A-15	0.077 J	<0.077 J	µg/m3

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 5

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	<u>Control Limits</u> % Recovery	Associated Sample ID	Qualified Results	Units
VOCs	Ethanol	02/15/2018	148	65-146	SV104A-15	5.0 J	µg/m3
					SV104B-22	9.2 J	µg/m3
					SV104B-27	6.7 J	µg/m3
					SV103A-5	22.6 J	µg/m3
					SV102A-15	2.6 J	µg/m3
					SV101B-25	8.6 J	µg/m3
					SV101A-5	2.5 J	µg/m3
					SV102A-5	13.7 J	µg/m3
	DUP-1	13.7 J	µg/m3				

Notes:

- LCS - Laboratory Control Sample
- J - Estimated concentration
- VOCs - Volatile Organic Compounds

Table 6

Qualified Sample Data Due to Variability in Field Duplicate Results
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018

Parameter	Analyte	RPD/Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
VOCs	Carbon disulfide	RPD 64.5	SV101B-25	199 J	DUP-1	102 J	µg/m ³
	Chloroform (Trichloromethane)	RPD 61.0	SV101B-25	4170 J	DUP-1	2220 J	µg/m ³
	Cyclohexane	Diff 11.82	SV101B-25	12.2 J	DUP-1	<0.38 J	µg/m ³
	1,1-Dichloroethene	RPD 136.4	SV101B-25	0.36 J	DUP-1	<0.034 J	µg/m ³
	Acetone	Diff 67.3	SV101B-25	<2.5 J	DUP-1	69.8 J	µg/m ³
	Tetrahydrofuran	Diff 2.44	SV101B-25	<0.46 J	DUP-1	2.9 J	µg/m ³
	Trichlorofluoromethane (CFC-11)	Diff 7.3	SV101B-25	<0.70 J	DUP-1	8.0 J	µg/m ³

Notes:

- Diff - Difference (i.e., >1X RL for waters or >2XRL for soils)
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Data Due to Exceedance of Calibration Range
Soil Vapor and Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2018**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	SV101B-25	Carbon disulfide	199 J	µg/m ³
	SV101A-5	Chloroform (Trichloromethane)	3.4 J	µg/m ³

Notes:

J - Estimated concentration


VOCs - Volatile Organic Compounds



Memorandum

March 8, 2018

To: David Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/413-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

Subject: Analytical Results and Reduced Validation of Reports 10380460, 10380466, 10380467, 10380471, 10380472, 10380473, 10380474, 10380475, 10380478, 10380479, 10380481, 10380485, 10380558, 10380566, 10380572, 10380721, 10380722, 10380873, 10380874, 10380880, 10380881, 10380882, 10381427, 10381428 and 10381429
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
February – March 2017

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during February and March 2017. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with a few exceptions. Where the holding times were exceeded the associated sample results were qualified as estimated. Where the holding time was exceeded by more than two times the associated sample detections were qualified as estimated and the associated non-detect result was rejected. A summary of the qualifications and exception is presented in Table 4.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix



effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of one low biochemical oxygen demand (BOD) recovery. The associated sample result was qualified as estimated due to the implied low bias (see Table 6).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 7).



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

Organic Analyses

The MS samples were spiked with the analytes of interest. All percent recoveries were within the associated control limits, demonstrating acceptable analytical accuracy.

Inorganic Analyses

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with the exception of one low sulfide recovery. The associated sample results were qualified as estimated due to the implied low bias (see Table 7).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of seven trip blank samples and three field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, seven trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of methylene chloride present at low concentrations. The associated sample result with a concentration similar to the blanks was qualified as non-detect due to contamination as evidenced by the blanks (see Table 8).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.



All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exception noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments
					Anions	COD	BOD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs	
ASHER-GW-022417	Asher Well	Water	02/24/2017	14:40	X	X	X	X	X	X	X	X	X	X	X	MS
DAVEY-GW-022417	Davey Well (W46)	Water	02/24/2017	13:15	X	X	X	X	X	X	X	X	X	X	X	
LANG-GW-022417	Lang Well	Water	02/24/2017	08:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
LASHAW-GW-022417	Lashaw Well (Domestic)	Water	02/24/2017	11:15	X	X	X	X	X	X	X	X	X	X	X	
Marlow-GW-022817	Marlow Well	Water	02/28/2017	09:30	X	X	X	X	X	X	X	X	X	X	X	DUP
Marlow No2-GW-030917	Out-of-Use Marlow Well (No. 2)	Water	03/09/2017	11:00	X	X	X	X	X	X	X	X	X	X	X	
MW1D-GW-022817	MW-1D	Water	02/28/2017	14:40	X	X	X	X	X	X	X	X	X	X	X	
MW2D-GW-022817	MW-2D	Water	02/28/2017	11:25	X	X	X	X	X	X	X	X	X	X	X	DUP
MW3D-GW-030317	MW-3D	Water	03/03/2017	08:20	X	X	X	X	X	X	X	X	X	X	X	
MW4D-GW-030317	MW-4D	Water	03/03/2017	14:20	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW5D-GW-030117	MW-5D	Water	03/01/2017	11:40	X	X	X	X	X	X	X	X	X	X	X	
MW6D-GW-030117	MW-6D	Water	03/01/2017	15:10	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
FD-030117	MW-6D	Water	03/01/2017	--	X	X	X	X	X	X	X	X	X	X	X	FD (MW6D-GW-030117)
MW6S-GW-030217	MW-6S	Water	03/02/2017	08:45	X	X	X	X	X	X	X	X	X	X	X	MS - MS/MSD
MW7S-GW-030117	MW-7S	Water	03/01/2017	09:25	X	X	X	X	X	X	X	X	X	X	X	
MW8S-GW-030317	MW-8S	Water	03/03/2017	09:25	X	X	X	X	X	X	X	X	X	X	X	DUP
MW9D-GW-022717	MW-9D	Water	02/27/2017	11:20	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9S-GW-030117	MW-9S	Water	03/01/2017	08:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW10S-GW-030317	MW-10S	Water	03/03/2017	10:10	X	X	X	X	X	X	X	X	X	X	X	MS/MSD

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments
					Anions	COD	BOD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	
MW11S-GW-030217	MW-11S	Water	03/02/2017	10:50	X	X	X	X	X	X	X	X	X	X	
MW12S-GW-030217	MW-12S	Water	03/02/2017	10:00	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW13S-GW-022817	MW-13S	Water	02/28/2017	09:00	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW14D-GW-022717	MW-14D	Water	02/27/2017	09:25	X	X	X	X	X	X	X	X	X	X	
MW16D-GW-030217	MW-16D	Water	03/02/2017	13:45	X	X	X	X	X	X	X	X	X	X	
FD-030217	MW-16D	Water	03/02/2017	--	X	X	X	X	X	X	X	X	X	X	FD (MW16D-GW-030217)
MW18D-GW-030217	MW-18D	Water	03/02/2017	16:20	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
Randall-GW-022817	Randall Well	Water	02/28/2017	08:20	X	X	X	X	X	X	X	X	X	X	
REED-GW-022417	Reed Well (W30)	Water	02/24/2017	12:10	X	X	X	X	X	X	X	X	X	X	
SILVA-GW-022417	Silva Well	Water	02/24/2017	10:10	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
GWFD-01-022417	Silva Well	Water	02/24/2017	--	X	X	X	X	X	X	X	X	X	X	FD (SILVA-GW-022417)
STARK-GW-030317	Stark Well (W15)	Water	03/03/2017	10:50											X
THORSON-GW-030217	Thorson Well	Water	03/02/2017	08:00											X
W20-GW-030317	Out-of-Use Marlow Well (W20)	Water	03/03/2017	12:35	X	X	X	X	X	X	X	X	X	X	
W26-GW-030917	Out-of-Use Freeman School Well (W26)	Water	03/09/2017	09:00	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
WS5Influent-GW-030117	WS-5	Water	03/01/2017	12:15	X	X	X	X	X	X	X	X	X	X	
WS5Effluent-GW-030117	WS-5	Water	03/01/2017	12:20											X
Trip Blank	--	Water	02/24/2017	--											X
Trip Blank	--	Water	02/27/2017	--											X

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments					
					Anions	COD	BOD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury		VOCs				
Trip Blank	--	Water	02/28/2017	--															X	Trip Blank
Trip Blank	--	Water	03/01/2017	--															X	Trip Blank
Trip Blank	--	Water	03/01/2017	--															X	Trip Blank
Trip Blank	--	Water	03/02/2017	--															X	Trip Blank
Trip Blank	--	Water	03/09/2017	--															X	Trip Blank

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- BOD - Biochemical Oxygen Demand
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010C ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾	Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water
Biochemical Oxygen Demand (BOD)	Hach 10360 Rev 1.1 ⁽⁵⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions
- (5) - Hach - Hach Company catalog, 1990

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID: Sample Name: Sample Date:	Asher Well ASHER-GW-022417 02/24/2017	Davey Well (W46) DAVEY-GW-022417 02/24/2017	Lang Well LANG-GW-022417 02/24/2017	Lashaw Well (Domestic) LASHAW-GW-022417 02/24/2017	Marlow Well Marlow-GW-022817 02/28/2017
Parameters						
Unit						
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	--
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	--
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	--
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	--
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	--
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	--
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	--
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	--
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	--
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	--
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	--
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	--
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	--
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	--
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042	--
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	--
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	--
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	--
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	--
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087	--
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	--
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	--
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID: Sample Name: Sample Date:	Asher Well ASHER-GW-022417 02/24/2017	Davey Well (W46) DAVEY-GW-022417 02/24/2017	Lang Well LANG-GW-022417 02/24/2017	Lashaw Well (Domestic) LASHAW-GW-022417 02/24/2017	Marlow Well Marlow-GW-022817 02/28/2017
Parameters						
Unit						
Volatile Organic Compounds (Continued)						
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	--
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80	--
Acetone	µg/L	<0.64	<0.64	<0.64	<0.64	--
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	--
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	--
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	--
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087	--
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068	--
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11	--
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20	--
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20	--
Carbon tetrachloride	µg/L	<0.079	17.0	<0.079	0.68	--
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066	--
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082	--
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12	--
Chloroform (Trichloromethane)	µg/L	<0.21	4.6	<0.21	<0.21	--
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080	--
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	--
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069	--
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064	--
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048	--
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14	--
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075	--
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054	--
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050	--
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Asher Well ASHER-GW-022417 02/24/2017	Davey Well (W46) DAVEY-GW-022417 02/24/2017	Lang Well LANG-GW-022417 02/24/2017	Lashaw Well (Domestic) LASHAW-GW-022417 02/24/2017	Marlow Well Marlow-GW-022817 02/28/2017	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13	--
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064	--
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11	--
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047	--
Methylene chloride	µg/L	<0.097	<0.097	<1.7 J	<0.097	--
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16	--
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049	--
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064	--
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044	--
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056	--
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073	--
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89	--
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062	--
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051	--
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13	--
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5	--
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059	--
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	--
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044	--
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45	--
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044	--
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055	--
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13	--
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12	--
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098	--
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Asher Well ASHER-GW-022417 02/24/2017	Davey Well (W46) DAVEY-GW-022417 02/24/2017	Lang Well LANG-GW-022417 02/24/2017	Lashaw Well (Domestic) LASHAW-GW-022417 02/24/2017	Marlow Well Marlow-GW-022817 02/28/2017
Parameters	Unit				
Dissolved Gases					
Ethane	µg/L	<0.87	<0.87	<0.87	<0.87
Ethene	µg/L	<0.77	<0.77	<0.77	<0.77
Methane	µg/L	<2.2 J	<1.4 J	148	<1.4 J
Metals					
Aluminum (dissolved)	µg/L	20.1 J	16.4 J	<13.5	<13.5
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	3.5 J
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	102	48.3	0.23 J	9.7 J
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	82800	52000	126 J	26800
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.58 J	0.79 J	<0.51	0.64 J
Copper (dissolved)	µg/L	546	20.1	10.8	5.3 J
Iron (dissolved)	µg/L	31.2 J	58.4	49.3 J	217
Lead (dissolved)	µg/L	2.5 J	3.7 J	<1.9	<1.9
Magnesium (dissolved)	µg/L	24100	15300	89.4 J	13300
Manganese (dissolved)	µg/L	1.1 J	2.3 J	0.34 J	0.98 J
Mercury (dissolved)	µg/L	<0.031	0.040 J	<0.031	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	1330 J	973 J	819 J	3700
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	24900	10600	91100	15600
Thallium (dissolved)	µg/L	<3.8	4.2 J	<3.8	5.8 J
Vanadium (dissolved)	µg/L	10.7 J	7.8 J	3.8 J	10.9 J
Zinc (dissolved)	µg/L	36.7	282	6.4 J	232

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	Asher Well	Davey Well (W46)	Lang Well	Lashaw Well (Domestic)	Marlow Well
Sample Name:	ASHER-GW-022417	DAVEY-GW-022417	LANG-GW-022417	LASHAW-GW-022417	Marlow-GW-022817
Sample Date:	02/24/2017	02/24/2017	02/24/2017	02/24/2017	02/28/2017

Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	230	154	179	135	147
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--
Chloride	mg/L	14.1	16.2	1.9	1.6	12.2
Nitrate (as N)	mg/L	7.9 J	1.8 J	0.43 J	2.2 J	3.4 J
Sulfate	mg/L	54.7	10.9	2.1	5.6	11.2
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	425 J	253 J	242 J	189 J	288
Total organic carbon (TOC)	mg/L	1.6	0.56 J	0.48 J	0.94 J	0.54 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Marlow No2-GW-030917 03/09/2017	MW-1D MW1D-GW-022817 02/28/2017	MW-2D MW2D-GW-022817 02/28/2017	MW-3D MW3D-GW-030317 03/03/2017	MW-4D MW4D-GW-030317 03/03/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Marlow No2-GW-030917 03/09/2017	MW-1D MW1D-GW-022817 02/28/2017	MW-2D MW2D-GW-022817 02/28/2017	MW-3D MW3D-GW-030317 03/03/2017	MW-4D MW4D-GW-030317 03/03/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	1.7 J	<0.64
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	0.51	<0.042
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	1.4	<0.20	<0.20
Carbon tetrachloride	µg/L	0.25 J	<0.079	<0.079	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	0.27 J	<0.21	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	2.1 J	<0.080	<0.080	2.4 J
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	0.16 J	<0.075

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-2D	MW-3D	MW-4D
Sample Name:	Marlow No2-GW-030917	MW1D-GW-022817	MW2D-GW-022817	MW3D-GW-030317	MW4D-GW-030317
Sample Date:	03/09/2017	02/28/2017	02/28/2017	03/03/2017	03/03/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	0.14 J	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	0.44 J	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-2D	MW-3D	MW-4D	
Sample Name:	Marlow No2-GW-030917	MW1D-GW-022817	MW2D-GW-022817	MW3D-GW-030317	MW4D-GW-030317	
Sample Date:	03/09/2017	02/28/2017	02/28/2017	03/03/2017	03/03/2017	
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<0.87	5.1 J	8.6 J	<0.87	<0.87
Ethene	µg/L	<0.77	1.7 J	2.4 J	<0.77	<0.77
Methane	µg/L	<2.1 J	10.8	78.6	<1.1 J	<1.3 J
Metals						
Aluminum (dissolved)	µg/L	<13.5	<13.5	16.9 J	<13.5	<13.5
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	3.1 J	<2.5	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	13.8	77.5	104	42.3	50.4
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	29500	51200	36000	30600	40500
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.70 J	2.7 J	1.4 J	<0.51	0.83 J
Copper (dissolved)	µg/L	3.1 J	<0.89	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	75.7	3140	2310	<18.0	22.2 J
Lead (dissolved)	µg/L	<1.9	<1.9	<1.9	<1.9	<1.9
Magnesium (dissolved)	µg/L	7020	12800	10700	9260	14100
Manganese (dissolved)	µg/L	44.0	707	1670	21.4	32.1
Mercury (dissolved)	µg/L	<0.031	<0.031	<0.031	<0.031	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	2430 J	3350	5190	1130 J	2740
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	10800	12200	17200	13500	17700
Thallium (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Vanadium (dissolved)	µg/L	0.95 J	0.77 J	0.74 J	1.4 J	10 J
Zinc (dissolved)	µg/L	10.8 J	<2.1 J	<1.4	4.1 J	11.8 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-2D	MW-3D	MW-4D
Sample Name:	Marlow No2-GW-030917	MW1D-GW-022817	MW2D-GW-022817	MW3D-GW-030317	MW4D-GW-030317
Sample Date:	03/09/2017	02/28/2017	02/28/2017	03/03/2017	03/03/2017

Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	77.8	190	161	129	159
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--
Chloride	mg/L	5.3	1.9	1.6	1.4	5.1
Nitrate (as N)	mg/L	5.8 J	0.043 J	0.056 J	0.15 J	1.5 J
Sulfate	mg/L	20.2	1.5	0.53 J	3.8 J	16.1 J
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	181	253	235	180	253
Total organic carbon (TOC)	mg/L	7.4	1.1	2.9	0.41 J	1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-5D	MW-6D	MW-6D	MW-6S	MW-7S
Sample Name:	MW5D-GW-030117	MW6D-GW-030117	FD-030117	MW6S-GW-030217	MW7S-GW-030117
Sample Date:	03/01/2017	03/01/2017	03/01/2017 Duplicate	03/02/2017	03/01/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,1,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-5D	MW-6D	MW-6D	MW-6S	MW-7S
Sample Name:	MW5D-GW-030117	MW6D-GW-030117	FD-030117	MW6S-GW-030217	MW7S-GW-030117
Sample Date:	03/01/2017	03/01/2017	03/01/2017 Duplicate	03/02/2017	03/01/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	<0.64	<0.64
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	<0.079	2.5	2.5	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	0.35 J	0.33 J	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-5D	MW-6D	MW-6D	MW-6S	MW-7S
Sample Name:	MW5D-GW-030117	MW6D-GW-030117	FD-030117	MW6S-GW-030217	MW7S-GW-030117
Sample Date:	03/01/2017	03/01/2017	03/01/2017 Duplicate	03/02/2017	03/01/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-5D	MW-6D	MW-6D	MW-6S	MW-7S
Sample Name:	MW5D-GW-030117	MW6D-GW-030117	FD-030117	MW6S-GW-030217	MW7S-GW-030117
Sample Date:	03/01/2017	03/01/2017	03/01/2017 Duplicate	03/02/2017	03/01/2017
Parameters	Unit				
Dissolved Gases					
Ethane	µg/L	<0.87	<0.87	<0.87	<0.87
Ethene	µg/L	<0.77	<0.77	<0.77	<0.77
Methane	µg/L	<1.6 J	<1.7 J	<1.5 J	<1.8 J
Metals					
Aluminum (dissolved)	µg/L	<13.5	<13.5	<13.5	413
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	3.0 J	<2.5	<2.5	<2.5
Barium (dissolved)	µg/L	98.0	18.9	19.1	35.6
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	47200	34900	34800	35900
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.63 J	<0.51	<0.51	0.92 J
Copper (dissolved)	µg/L	<0.89	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	<18.0	<18.0	24.4 J	403
Lead (dissolved)	µg/L	<1.9	<1.9	<1.9	<1.9
Magnesium (dissolved)	µg/L	14200	16000	16000	10100
Manganese (dissolved)	µg/L	15.4	2.0 J	1.8 J	60.7
Mercury (dissolved)	µg/L	<0.031	<0.031	<0.031	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	3630	6870	6830	725 J
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	27200	18800	18800	12100
Thallium (dissolved)	µg/L	4.8 J	6.8 J	4.9 J	<3.8
Vanadium (dissolved)	µg/L	3.3 J	15.9	16.2	6.3 J
Zinc (dissolved)	µg/L	<4.5 J	1.6 J	3.7 J	9.9 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID:	MW-5D	MW-6D	MW-6D	MW-6S	MW-7S
	Sample Name:	MW5D-GW-030117	MW6D-GW-030117	FD-030117	MW6S-GW-030217	MW7S-GW-030117
	Sample Date:	03/01/2017	03/01/2017	03/01/2017 Duplicate	03/02/2017	03/01/2017
Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	200	178	179	146	96.2
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--
Chloride	mg/L	3.7	4.0	4.0	1.8	10.8
Nitrate (as N)	mg/L	0.73	0.82 J	0.80 J	0.049 J	7.7
Sulfate	mg/L	9.3	5.4	5.3	2.2 J	22.7
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	310	223	241	183	283
Total organic carbon (TOC)	mg/L	1.0	0.48 J	0.51 J	1.1	1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Sample Name:	MW8S-GW-030317	MW9D-GW-022717	MW9S-GW-030117	MW10S-GW-030317	MW11S-GW-030217	MW12S-GW-030217
Sample Date:	03/03/2017	02/27/2017	03/01/2017	03/03/2017	03/02/2017	03/02/2017

Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064 / <0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057 / <0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055 / <0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064 / <0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055 / <0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069 / <0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082 / <0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17 / <0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19 / <0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14 / <0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068 / <0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60 / <0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092 / <0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078 / <0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072 / <0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16 / <0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066 / <0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042 / <0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085 / <0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059 / <0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081 / <0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8 / <4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087 / <0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096 / <0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1 / <1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084 / <0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19 / <0.19	<0.19	<0.19	<0.19

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Sample Name:	MW8S-GW-030317	MW9D-GW-022717	MW9S-GW-030117	MW10S-GW-030317	MW11S-GW-030217	MW12S-GW-030217
Sample Date:	03/03/2017	02/27/2017	03/01/2017	03/03/2017	03/02/2017	03/02/2017

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Volatile Organic Compounds (Continued)							
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094 / <0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048 / <0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80 / <0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	<0.64 / <0.64	<0.64	<0.64	<0.64
Acrolein	µg/L	<2.1	<2.1	<2.1 / <2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49 / <0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042 / <0.042	<0.042	<0.042	<0.042
Bromobenzene	µg/L	<0.087	<0.087	<0.087 / <0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068 / <0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11 / <0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20 / <0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	1.1	0.36 J	1.4 / 1.4	0.21 J	<0.20	0.20 J
Carbon tetrachloride	µg/L	231	132	540 / 521	31.6	<0.079	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066 / <0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082 / <0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12 / <0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	57.2	5.6	74.9 / 74.4	1.5	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080 / <0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12 / <0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069 / <0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064 / <0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048 / <0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14 / <0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075 / <0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054 / <0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050 / <0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075 / <0.075	<0.075	<0.075	<0.075

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Sample Name:	MW8S-GW-030317	MW9D-GW-022717	MW9S-GW-030117	MW10S-GW-030317	MW11S-GW-030217	MW12S-GW-030217
Sample Date:	03/03/2017	02/27/2017	03/01/2017	03/03/2017	03/02/2017	03/02/2017
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13 / <0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064 / <0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11 / <0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047 / <0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097 / <0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16 / <0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049 / <0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064 / <0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044 / <0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056 / <0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073 / <0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89 / <0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062 / <0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051 / <0.051	<0.051	<0.051
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13 / <0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5 / <1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059 / <0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15 / <0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044 / <0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45 / <0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044 / <0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055 / <0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13 / <0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12 / <0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098 / <0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15 / <0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Sample Name:	MW8S-GW-030317	MW9D-GW-022717	MW9S-GW-030117	MW10S-GW-030317	MW11S-GW-030217	MW12S-GW-030217
Sample Date:	03/03/2017	02/27/2017	03/01/2017	03/03/2017	03/02/2017	03/02/2017

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Dissolved Gases							
Ethane	µg/L	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87
Ethene	µg/L	<0.77	<0.77	<0.77	<0.77	<0.77	<0.77
Methane	µg/L	<1.6 J	<2.1 J	<1.2 J	26.4	<1.8 J	<2.0 J
Metals							
Aluminum (dissolved)	µg/L	28.4 J	<13.5	1540	22.3 J	24.9 J	<13.5
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5	3.8 J	<2.5
Barium (dissolved)	µg/L	38.8	33.9	77.8	65.7	42.4	188
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	0.32 J	<0.30	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	44200	56500	63600	74200	45200	80100
Chromium (dissolved)	µg/L	<2.0	2.5 J	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	1.5 J	<0.51	2.0 J	1.9 J	2.8 J	5.1 J
Copper (dissolved)	µg/L	<0.89	1.5 J	0.99 J	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	<18.0	30.5 J	3010	<18.0	<18.0	625
Lead (dissolved)	µg/L	<1.9	<1.9	3.0 J	<1.9	<1.9	<1.9
Magnesium (dissolved)	µg/L	10700	16000	14300	21100	13400	24000
Manganese (dissolved)	µg/L	146	31.7	111	204	403	1080
Mercury (dissolved)	µg/L	<0.031	<0.031	<0.031	<0.031	<0.031	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6	<1.6	4.5 J
Potassium (dissolved)	µg/L	418 J	2540	<1450 J	738 J	858 J	893 J
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	11500	18700	12900	13200	19200	33900
Thallium (dissolved)	µg/L	<3.8	<3.8	5.9 J	<3.8	<3.8	<3.8
Vanadium (dissolved)	µg/L	1.4 J	4.6 J	7.7 J	3.6 J	6.9 J	1.3 J
Zinc (dissolved)	µg/L	20.6	4.2 J	<19.4 J	16.2 J	3.7 J	9.3 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID:	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
Sample Name:	MW8S-GW-030317	MW9D-GW-022717	MW9S-GW-030117	MW10S-GW-030317	MW11S-GW-030217	MW12S-GW-030217
Sample Date:	03/03/2017	02/27/2017	03/01/2017	03/03/2017	03/02/2017	03/02/2017

Parameters	Unit	MW-8S	MW-9D	MW-9S	MW-10S	MW-11S	MW-12S
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	124	153	81.6	270	193	264
Biochemical oxygen demand (BOD)	mg/L	--	--	1.3 J	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	<5.4	--	--	--
Chloride	mg/L	1.8	14.7	28.0	1.2 J	1.0 J	40.9
Nitrate (as N)	mg/L	6.9 J	4.2 J	13.2	0.29 J	<0.013 J	1.9 J
Sulfate	mg/L	18.8 J	34.2	61.2	2.6 J	2.8 J	34.0 J
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	0.0097 J	<0.0050	0.014 J
Total dissolved solids (TDS)	mg/L	255	341	444	307	222	437
Total organic carbon (TOC)	mg/L	1.3	0.95 J	1.4	0.99 J	0.60 J	3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID:	MW-13S	MW-14D	MW-16D	MW-16D	MW-18D	Randall Well
Sample Name:	MW13S-GW-022817	MW14D-GW-022717	MW16D-GW-030217	FD-030217	MW18D-GW-030217	Randall-GW-022817
Sample Date:	02/28/2017	02/27/2017	03/02/2017	03/02/2017 Duplicate	03/02/2017	02/28/2017
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	--
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057	--
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	--
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064	--
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055	--
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069	--
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082	--
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	--
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19	--
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	--
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092	--
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078	--
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072	--
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16	--
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066	--
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042	--
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085	--
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059	--
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081	--
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8	--
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087	--
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1	--
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084	--
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-13S	MW-14D	MW-16D	MW-16D	MW-18D	Randall Well	
Sample Name:	MW13S-GW-022817	MW14D-GW-022717	MW16D-GW-030217	FD-030217	MW18D-GW-030217	Randall-GW-022817	
Sample Date:	02/28/2017	02/27/2017	03/02/2017	03/02/2017 Duplicate	03/02/2017	02/28/2017	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094	<0.094	--
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	--
Acetone	µg/L	<0.64	<0.64	<0.64	<0.64	<0.64	--
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1	<2.1	--
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	--
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042	--
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087	<0.087	--
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068	--
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	--
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
Carbon tetrachloride	µg/L	<0.079	<0.079	<0.079	<0.079	<0.079	--
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066	<0.066	--
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082	<0.082	--
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	--
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080	<0.080	--
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069	<0.069	--
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	--
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048	<0.048	--
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	--
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075	--
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054	<0.054	--
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050	--
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID: Sample Name: Sample Date:	MW-13S MW13S-GW-022817 02/28/2017	MW-14D MW14D-GW-022717 02/27/2017	MW-16D MW16D-GW-030217 03/02/2017	MW-16D FD-030217 03/02/2017 Duplicate	MW-18D MW18D-GW-030217 03/02/2017	Randall Well Randall-GW-022817 02/28/2017	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	--
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	--
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	--
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047	<0.047	--
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097	<0.097	--
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049	<0.049	--
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064	--
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044	--
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056	<0.056	--
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073	<0.073	--
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89	<0.89	--
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	--
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051	<0.051	--
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	--
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	--
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059	<0.059	--
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044	--
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45	--
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044	<0.044	--
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055	<0.055	--
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	--
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	--
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-13S	MW-14D	MW-16D	MW-16D	MW-18D	Randall Well
Sample Name:	MW13S-GW-022817	MW14D-GW-022717	MW16D-GW-030217	FD-030217	MW18D-GW-030217	Randall-GW-022817
Sample Date:	02/28/2017	02/27/2017	03/02/2017	03/02/2017 Duplicate	03/02/2017	02/28/2017
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<0.87	<0.87	<0.87	<0.87	<0.87
Ethene	µg/L	<0.77	<0.77	<0.77	<0.77	<0.77
Methane	µg/L	<2.6 J	<1.7 J	<1.0 J	<1.5 J	<1.9 J
Metals						
Aluminum (dissolved)	µg/L	<13.5	133 J	<13.5	22.9 J	62.2 J
Antimony (dissolved)	µg/L	2.7 J	<2.5	<2.5	<2.5	<2.5
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	2.9 J	2.8 J
Barium (dissolved)	µg/L	70.0	22.8	63.1	63.4	54.3
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	<0.064	<0.064
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Calcium (dissolved)	µg/L	39200	31100	67200	67400	25400
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Cobalt (dissolved)	µg/L	0.83 J	0.86 J	0.66 J	0.57 J	0.78 J
Copper (dissolved)	µg/L	<0.89	0.89 J	<0.89	<0.89	<0.89
Iron (dissolved)	µg/L	<18.0	92.0	<18.0	<18.0	126
Lead (dissolved)	µg/L	2.2 J	<1.9	<1.9	<1.9	<1.9
Magnesium (dissolved)	µg/L	11900	9740	20300	20400	16000
Manganese (dissolved)	µg/L	46.2	326	7.1	7.6	66.7
Mercury (dissolved)	µg/L	<0.031	<0.031	<0.031	<0.031	<0.031
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	<1.6	<1.6
Potassium (dissolved)	µg/L	1330 J	624 J	1510 J	1550 J	3510
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	<4.5	<4.5
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Sodium (dissolved)	µg/L	15500	19400	18600	18800	23100
Thallium (dissolved)	µg/L	6.4 J	<3.8	<3.8	<3.8	<3.8
Vanadium (dissolved)	µg/L	10.2 J	4.1 J	9.1 J	9.2 J	0.46 J
Zinc (dissolved)	µg/L	3.8 J	5.3 J	<1.4	1.7 J	4.9 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	MW-13S	MW-14D	MW-16D	MW-16D	MW-18D	Randall Well
Sample Name:	MW13S-GW-022817	MW14D-GW-022717	MW16D-GW-030217	FD-030217	MW18D-GW-030217	Randall-GW-022817
Sample Date:	02/28/2017	02/27/2017	03/02/2017	03/02/2017 Duplicate	03/02/2017	02/28/2017

Parameters	Unit						
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	160	127	207	216	155	154
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--	--
Chloride	mg/L	<1.2 J	1.9	8.7	8.9	4.3	6.1
Nitrate (as N)	mg/L	0.26 J	R	7.0 J	7.1 J	<0.013 J	2.5 J
Sulfate	mg/L	3.4	10.0	32.1 J	32.6 J	11.6 J	9.3
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	238	225	354	350	198	285
Total organic carbon (TOC)	mg/L	0.55 J	1.9	1.2	1.2	1.1	0.38 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Reed Well (W30) REED-GW-022417 02/24/2017	Silva Well SILVA-GW-022417 02/24/2017	Silva Well GWFD-01-022417 02/24/2017 Duplicate	Stark Well (W15) STARK-GW-030317 03/03/2017	Thorson Well THORSON-GW-030217 03/02/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Reed Well (W30) REED-GW-022417 02/24/2017	Silva Well SILVA-GW-022417 02/24/2017	Silva Well GWFD-01-022417 02/24/2017 Duplicate	Stark Well (W15) STARK-GW-030317 03/03/2017	Thorson Well THORSON-GW-030217 03/02/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	<0.64	<0.64
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	<0.079	<0.079	<0.079	<0.079
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	<0.21	<0.21	<0.21
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Reed Well (W30) REED-GW-022417 02/24/2017	Silva Well SILVA-GW-022417 02/24/2017	Silva Well GWFD-01-022417 02/24/2017 Duplicate	Stark Well (W15) STARK-GW-030317 03/03/2017	Thorson Well THORSON-GW-030217 03/02/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID: Sample Name: Sample Date:	Reed Well (W30) REED-GW-022417 02/24/2017	Silva Well SILVA-GW-022417 02/24/2017	Silva Well GWFD-01-022417 02/24/2017 Duplicate	Stark Well (W15) STARK-GW-030317 03/03/2017	Thorson Well THORSON-GW-030217 03/02/2017
Parameters	Unit				
Dissolved Gases					
Ethane	µg/L	<0.87	<0.87	<0.87	--
Ethene	µg/L	<0.77	<0.77	<0.77	--
Methane	µg/L	<2.9 J	<2.7 J	<3.2 J	--
Metals					
Aluminum (dissolved)	µg/L	<13.5	<13.5	<13.5	--
Antimony (dissolved)	µg/L	<2.5	<2.5	<2.5	--
Arsenic (dissolved)	µg/L	<2.5	<2.5	<2.5	--
Barium (dissolved)	µg/L	44.9	0.28 J	0.37 J	--
Beryllium (dissolved)	µg/L	<0.064	<0.064	<0.064	--
Cadmium (dissolved)	µg/L	<0.30	<0.30	<0.30	--
Calcium (dissolved)	µg/L	27900	54.5 J	64.4 J	--
Chromium (dissolved)	µg/L	<2.0	<2.0	<2.0	--
Cobalt (dissolved)	µg/L	<0.51	<0.51	<0.51	--
Copper (dissolved)	µg/L	1.0 J	263	275	--
Iron (dissolved)	µg/L	93.8	<18.0	26.0 J	--
Lead (dissolved)	µg/L	2.4 J	7.2 J	8.1 J	--
Magnesium (dissolved)	µg/L	11000	1070	1290	--
Manganese (dissolved)	µg/L	3.0 J	6.4	8.0	--
Mercury (dissolved)	µg/L	<0.031	<0.031	<0.031	--
Nickel (dissolved)	µg/L	<1.6	<1.6	<1.6	--
Potassium (dissolved)	µg/L	2940	<26.1	<26.1	--
Selenium (dissolved)	µg/L	<4.5	<4.5	<4.5	--
Silver (dissolved)	µg/L	<0.28	<0.28	<0.28	--
Sodium (dissolved)	µg/L	13700	87800	87100	--
Thallium (dissolved)	µg/L	<3.8	<3.8	<3.8	--
Vanadium (dissolved)	µg/L	23.1	1.4 J	1.4 J	--
Zinc (dissolved)	µg/L	23.5	286	301	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID:	Reed Well (W30)	Silva Well	Silva Well	Stark Well (W15)	Thorson Well
Sample Name:	REED-GW-022417	SILVA-GW-022417	GWFD-01-022417	STARK-GW-030317	THORSON-GW-030217
Sample Date:	02/24/2017	02/24/2017	02/24/2017 Duplicate	03/03/2017	03/02/2017

Parameters

Unit

General Chemistry

Parameter	Unit	Reed Well (W30)	Silva Well	Silva Well	Stark Well (W15)	Thorson Well
Alkalinity, total (as CaCO3)	mg/L	129	149	146	--	--
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--
Chloride	mg/L	1.2	17.5	17.6	--	--
Nitrate (as N)	mg/L	0.23 J	0.22 J	0.22 J	--	--
Sulfate	mg/L	6.4	7.6	7.6	--	--
Sulfide	mg/L	<0.0050	<0.0050	<0.0050	--	--
Total dissolved solids (TDS)	mg/L	185 J	243 J	241 J	--	--
Total organic carbon (TOC)	mg/L	0.27 J	0.66 J	0.56 J	--	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
	Sample Name:	W20-GW-030317	W26-GW-030917	WS5Effluent-GW-030117	WS5Influent-GW-030117
	Sample Date:	03/03/2017	03/09/2017	03/01/2017	03/01/2017
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1,1-Trichloroethane	µg/L	<0.057	<0.057	<0.057	<0.057
1,1,2,2-Tetrachloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1,2-Trichloroethane	µg/L	<0.064	<0.064	<0.064	<0.064
1,1-Dichloroethane	µg/L	<0.055	<0.055	<0.055	<0.055
1,1-Dichloroethene	µg/L	<0.069	<0.069	<0.069	<0.069
1,1-Dichloropropene	µg/L	<0.082	<0.082	<0.082	<0.082
1,2,3-Trichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,2,3-Trichloropropane	µg/L	<0.19	<0.19	<0.19	<0.19
1,2,4-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2,4-Trimethylbenzene	µg/L	<0.068	<0.068	<0.068	<0.068
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<0.60	<0.60	<0.60	<0.60
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.092	<0.092	<0.092	<0.092
1,2-Dichlorobenzene	µg/L	<0.078	<0.078	<0.078	<0.078
1,2-Dichloroethane	µg/L	<0.072	<0.072	<0.072	<0.072
1,2-Dichloroethene (total)	µg/L	<0.16	<0.16	<0.16	<0.16
1,2-Dichloropropane	µg/L	<0.066	<0.066	<0.066	<0.066
1,3,5-Trimethylbenzene	µg/L	<0.042	<0.042	<0.042	<0.042
1,3-Dichlorobenzene	µg/L	<0.085	<0.085	<0.085	<0.085
1,3-Dichloropropane	µg/L	<0.059	<0.059	<0.059	<0.059
1,4-Dichlorobenzene	µg/L	<0.081	<0.081	<0.081	<0.081
1,4-Dioxane	µg/L	<4.8	<4.8	<4.8	<4.8
2,2,4-Trimethylpentane	µg/L	<0.087	<0.087	<0.087	<0.087
2,2-Dichloropropane	µg/L	<0.096	<0.096	<0.096	<0.096
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<1.1	<1.1	<1.1	<1.1
2-Chlorotoluene	µg/L	<0.084	<0.084	<0.084	<0.084
2-Hexanone	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
	Sample Name:	W20-GW-030317	W26-GW-030917	WS5Effluent-GW-030117	WS5Influent-GW-030117
	Sample Date:	03/03/2017	03/09/2017	03/01/2017	03/01/2017
Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.094	<0.094	<0.094	<0.094
4-Chlorotoluene	µg/L	<0.048	<0.048	<0.048	<0.048
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.80	<0.80	<0.80	<0.80
Acetone	µg/L	<0.64	<0.64	<0.64	<0.64
Acrolein	µg/L	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	µg/L	<0.49	<0.49	<0.49	<0.49
Benzene	µg/L	<0.042	<0.042	<0.042	<0.042
Bromobenzene	µg/L	<0.087	<0.087	<0.087	<0.087
Bromodichloromethane	µg/L	<0.068	<0.068	<0.068	<0.068
Bromoform	µg/L	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon disulfide	µg/L	<0.20	<0.20	<0.20	<0.20
Carbon tetrachloride	µg/L	<0.079	28.0	0.32 J	9.2
Chlorobenzene	µg/L	<0.066	<0.066	<0.066	<0.066
Chlorobromomethane	µg/L	<0.082	<0.082	<0.082	<0.082
Chloroethane	µg/L	<0.12	<0.12	<0.12	<0.12
Chloroform (Trichloromethane)	µg/L	<0.21	2.2	<0.21	0.46 J
Chloromethane (Methyl chloride)	µg/L	<0.080	<0.080	<0.080	<0.080
cis-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
cis-1,3-Dichloropropene	µg/L	<0.069	<0.069	<0.069	<0.069
Cymene (p-Isopropyltoluene)	µg/L	<0.064	<0.064	<0.064	<0.064
Dibromochloromethane	µg/L	<0.048	<0.048	<0.048	<0.048
Dibromomethane	µg/L	<0.14	<0.14	<0.14	<0.14
Dichlorodifluoromethane (CFC-12)	µg/L	<0.075	<0.075	<0.075	<0.075
Dichlorofluoromethane	µg/L	<0.054	<0.054	<0.054	<0.054
Diisopropyl ether	µg/L	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	µg/L	<0.075	<0.075	<0.075	<0.075

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) W20-GW-030317 03/03/2017	Out-of-Use Freeman School Well (W26) W26-GW-030917 03/09/2017	WS-5 WS5Effluent-GW-030117 03/01/2017	WS-5 WS5Influent-GW-030117 03/01/2017
Parameters					
Unit					
Volatile Organic Compounds (Continued)					
Hexachlorobutadiene	µg/L	<0.13	<0.13	<0.13	<0.13
Isopropyl benzene	µg/L	<0.064	<0.064	<0.064	<0.064
m&p-Xylenes	µg/L	<0.11	<0.11	<0.11	<0.11
Methyl tert butyl ether (MTBE)	µg/L	<0.047	<0.047	<0.047	<0.047
Methylene chloride	µg/L	<0.097	<0.097	<0.097	<0.097
N-Butylbenzene	µg/L	<0.16	<0.16	<0.16	<0.16
N-Propylbenzene	µg/L	<0.049	<0.049	<0.049	<0.049
Naphthalene	µg/L	<0.064	<0.064	<0.064	<0.064
o-Xylene	µg/L	<0.044	<0.044	<0.044	<0.044
Styrene	µg/L	<0.056	<0.056	<0.056	<0.056
tert-Amyl methyl ether	µg/L	<0.073	<0.073	<0.073	<0.073
tert-Butyl alcohol	µg/L	<0.89	<0.89	<0.89	<0.89
tert-Butyl ethyl ether	µg/L	<0.062	<0.062	<0.062	<0.062
tert-Butylbenzene	µg/L	<0.051	<0.051	<0.051	<0.051
Tetrachloroethene	µg/L	<0.13	<0.13	<0.13	<0.13
Tetrahydrofuran	µg/L	<1.5	<1.5	<1.5	<1.5
Toluene	µg/L	<0.059	<0.059	<0.059	<0.059
trans-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
trans-1,3-Dichloropropene	µg/L	<0.044	<0.044	<0.044	<0.044
trans-1,4-Dichloro-2-butene	µg/L	<0.45	<0.45	<0.45	<0.45
Trichloroethene	µg/L	<0.044	<0.044	<0.044	<0.044
Trichlorofluoromethane (CFC-11)	µg/L	<0.055	<0.055	<0.055	<0.055
Trifluorotrchloroethane (CFC-113)	µg/L	<0.13	<0.13	<0.13	<0.13
Vinyl acetate	µg/L	<0.12	<0.12	<0.12	<0.12
Vinyl chloride	µg/L	<0.098	<0.098	<0.098	<0.098
Xylenes (total)	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
Sample Name:	W20-GW-030317	W26-GW-030917	WS5Effluent-GW-030117	WS5Influent-GW-030117
Sample Date:	03/03/2017	03/09/2017	03/01/2017	03/01/2017
Parameters	Unit			
Dissolved Gases				
Ethane	µg/L	<0.87	<0.87	--
Ethene	µg/L	<0.77	<0.77	--
Methane	µg/L	46.1	<1.7 J	--
Metals				
Aluminum (dissolved)	µg/L	<13.5	<13.5	--
Antimony (dissolved)	µg/L	<2.5	<2.5	--
Arsenic (dissolved)	µg/L	<2.5	<2.5	--
Barium (dissolved)	µg/L	17.9	6.6 J	--
Beryllium (dissolved)	µg/L	<0.064	<0.064	--
Cadmium (dissolved)	µg/L	<0.30	0.31 J	--
Calcium (dissolved)	µg/L	40800	37500	--
Chromium (dissolved)	µg/L	<2.0	<2.0	--
Cobalt (dissolved)	µg/L	<0.51	<0.51	--
Copper (dissolved)	µg/L	<0.89	<0.89	--
Iron (dissolved)	µg/L	575	<18.0	--
Lead (dissolved)	µg/L	<1.9	<1.9	--
Magnesium (dissolved)	µg/L	14100	11100	--
Manganese (dissolved)	µg/L	53.1	0.82 J	--
Mercury (dissolved)	µg/L	<0.031	<0.031	--
Nickel (dissolved)	µg/L	<1.6	<1.6	--
Potassium (dissolved)	µg/L	2160 J	2220 J	--
Selenium (dissolved)	µg/L	<4.5	<4.5	--
Silver (dissolved)	µg/L	<0.28	<0.28	--
Sodium (dissolved)	µg/L	10800	12500	--
Thallium (dissolved)	µg/L	<3.8	5.8 J	--
Vanadium (dissolved)	µg/L	6.7 J	7.6 J	--
Zinc (dissolved)	µg/L	3.3 J	94.9	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	WS-5	WS-5
Sample Name:	W20-GW-030317	W26-GW-030917	WS5Effluent-GW-030117	WS5Influent-GW-030117
Sample Date:	03/03/2017	03/09/2017	03/01/2017	03/01/2017

Parameters	Unit				
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	148	141	--	161
Biochemical oxygen demand (BOD)	mg/L	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--
Chloride	mg/L	2.3	4.7	--	3.1
Nitrate (as N)	mg/L	4.4 J	2.3 J	--	1.1
Sulfate	mg/L	13.8 J	11.2	--	5.9
Sulfide	mg/L	0.37	<0.0050	--	<0.0050
Total dissolved solids (TDS)	mg/L	236	233	--	261
Total organic carbon (TOC)	mg/L	0.68 J	0.64 J	--	0.42 J

Notes:

- "--" - Not analyzed
- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- J - Estimated concentration
- R - Rejected

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	LANG-GW-022417	48 hours	>96 hours	Nitrate (as N)	0.43 J	mg/L
	SILVA-GW-022417	48 hours	>96 hours	Nitrate (as N)	0.22 J	mg/L
	LASHAW-GW-022417	48 hours	>96 hours	Nitrate (as N)	2.2 J	mg/L
	REED-GW-022417	48 hours	>96 hours	Nitrate (as N)	0.23 J	mg/L
	DAVEY-GW-022417	48 hours	>96 hours	Nitrate (as N)	1.8 J	mg/L
	ASHER-GW-022417	48 hours	>96 hours	Nitrate (as N)	7.9 J	mg/L
	GWFD-01-022417	48 hours	>96 hours	Nitrate (as N)	0.22 J	mg/L
	MW9D-GW-022717	48 hours	>96 hours	Nitrate (as N)	4.2 J	mg/L
	MW14D-GW-022717	48 hours	>96 hours	Nitrate (as N)	R	
	MW13S-GW-022817	48 hours	>48 hours	Nitrate (as N)	0.26 J	mg/L
	Marlow-GW-022817	48 hours	>48 hours	Nitrate (as N)	3.4 J	mg/L
	Randall-GW-022817	48 hours	>48 hours	Nitrate (as N)	2.5 J	mg/L
	MW2D-GW-022817	48 hours	>96 hours	Nitrate (as N)	0.056 J	mg/L
	MW1D-GW-022817	48 hours	>48 hours	Nitrate (as N)	0.043 J	mg/L
	FD-030117	48 hours	>48 hours	Nitrate (as N)	0.80 J	mg/L
	MW16D-GW-030217	48 hours	>48 hours	Nitrate (as N)	7.0 J	mg/L
	MW18D-GW-030217	48 hours	>48 hours	Nitrate (as N)	<0.013 J	mg/L
	LANG-GW-022417	7 days	11 days	Total dissolved solids (TDS)	242 J	mg/L
	SILVA-GW-022417	7 days	11 days	Total dissolved solids (TDS)	243 J	mg/L
	LASHAW-GW-022417	7 days	11 days	Total dissolved solids (TDS)	189 J	mg/L
REED-GW-022417	7 days	11 days	Total dissolved solids (TDS)	185 J	mg/L	
DAVEY-GW-022417	7 days	11 days	Total dissolved solids (TDS)	253 J	mg/L	
ASHER-GW-022417	7 days	11 days	Total dissolved solids (TDS)	425 J	mg/L	
GWFD-01-022417	7 days	11 days	Total dissolved solids (TDS)	241 J	mg/L	

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases	Methane	03/01/2017	2.1 J	MW13S-GW-022817	2.6 J	<2.6 J	µg/L
				Marlow-GW-022817	1.4 J	<1.4 J	µg/L
				Randall-GW-022817	1.9 J	<1.9 J	µg/L
				LANG-GW-022417	4.3 J	<4.3 J	µg/L
				SILVA-GW-022417	2.7 J	<2.7 J	µg/L
				REED-GW-022417	2.9 J	<2.9 J	µg/L
				DAVEY-GW-022417	1.4 J	<1.4 J	µg/L
				ASHER-GW-022417	2.2 J	<2.2 J	µg/L
				GWFD-01-022417	3.2 J	<3.2 J	µg/L
				MW9D-GW-022717	2.1 J	<2.1 J	µg/L
		MW14D-GW-022717	1.7 J	<1.7 J	µg/L		
		03/02/2017	1.7 J	MW6S-GW-030217	1.8 J	<1.8 J	µg/L
				MW12S-GW-030217	2.0 J	<2.0 J	µg/L
				MW11S-GW-030217	1.8 J	<1.8 J	µg/L
				FD-030217	1.5 J	<1.5 J	µg/L
				MW16D-GW-030217	1.0 J	<1.0 J	µg/L
		03/07/2017	1.7 J	MW9S-GW-030117	1.2 J	<1.2 J	µg/L
				MW7S-GW-030117	2.0 J	<2.0 J	µg/L
				MW5D-GW-030117	1.6 J	<1.6 J	µg/L
				WS5Influent-GW-030117	2.0 J	<2.0 J	µg/L
				MW6D-GW-030117	1.7 J	<1.7 J	µg/L
				FD-030117	1.5 J	<1.5 J	µg/L

Table 5

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases		03/07/2017	1.7 J	MW18D-GW-030217	0.97 J	<0.97 J	µg/L
				MW3D-GW-030317	1.1 J	<1.1 J	µg/L
				MW8S-GW-030317	1.6 J	<1.6 J	µg/L
				MW4D-GW-030317	1.3 J	<1.3 J	µg/L
		03/13/2017	2.1 J	W26-GW-030917	1.7 J	<1.7 J	µg/L
				Marlow No2-GW-030917	2.1 J	<2.1 J	µg/L
Metals	Potassium (dissolved)	03/06/2017	71.8 J	MW9S-GW-030117	1450 J	<1450 J	µg/L
				MW7S-GW-030117	556 J	<556 J	µg/L
	Zinc (dissolved)	03/06/2017	5.8 J	MW9S-GW-030117	19.4 J	<19.4 J	µg/L
				MW7S-GW-030117	7.6 J	<7.6 J	µg/L
				MW5D-GW-030117	4.5 J	<4.5 J	µg/L
				WS5Influent-GW-030117	14.8 J	<14.8 J	µg/L
			MW1D-GW-022817	2.1 J	<2.1 J	µg/L	
General Chemistry	Chloride	03/01/2017	0.24 J	MW13S-GW-022817	1.2 J	<1.2 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	<u>Control Limits</u> % Recovery	Associated Sample ID	Qualified Results	Units
General Chemistry	Biochemical oxygen demand (BOD)	03/07/2017	62	85-115	MW9S-GW-030117	1.3 J	mg/L

Notes:

- LCS - Laboratory Control Sample
J - Estimated concentration

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units		
			% Recovery	% Recovery	(percent)	% Recovery	RPD					
General Chemistry	MW6D-GW-030117	Sulfide	67	--	--	75-125	--	MW2D-GW-022817	<0.0050 J	mg/L		
								MW1D-GW-022817	<0.0050 J	mg/L		
									MW6D-GW-030117	<0.0050 J	mg/L	
									FD-030117	<0.0050 J	mg/L	
			Nitrate (as N)	83	82	1	90-110	20	MW6D-GW-030117	0.82 J	mg/L	
									FD-030117	0.80 J	mg/L	
		MW4D-GW-030317	Nitrate (as N)	75	74	0	90-110	20	MW6S-GW-030217	0.049 J	mg/L	
										MW12S-GW-030217	1.9 J	mg/L
										MW11S-GW-030217	<0.013 J	mg/L
										FD-030217	7.1 J	mg/L
										MW16D-GW-030217	7.0 J	mg/L
										MW18D-GW-030217	<0.013 J	mg/L
										MW3D-GW-030317	0.15 J	mg/L
										MW8S-GW-030317	6.9 J	mg/L
									MW10S-GW-030317	0.29 J	mg/L	
									W20-GW-030317	4.4 J	mg/L	
							MW4D-GW-030317	1.5 J	mg/L			
	MW4D-GW-030317	Sulfate	82	81	0	90-110	20	MW6S-GW-030217	2.2 J	mg/L		

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 February - March 2017**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery	(percent)	% Recovery	RPD				
General Chemistry	MW18D-GW-030217	Sulfate	86	88	1	90-110	20	MW12S-GW-030217	34.0 J	mg/L	
									MW11S-GW-030217	2.8 J	mg/L
									FD-030217	32.6 J	mg/L
									MW16D-GW-030217	32.1 J	mg/L
									MW18D-GW-030217	11.6 J	mg/L
									MW3D-GW-030317	3.8 J	mg/L
									MW8S-GW-030317	18.8 J	mg/L
									MW10S-GW-030317	2.6 J	mg/L
									W20-GW-030317	13.8 J	mg/L
									MW4D-GW-030317	16.1 J	mg/L
	W26-GW-030917	Nitrate (as N)	81	80	0	90-110	20	W26-GW-030917	2.3 J	mg/L	
								Marlow No2-GW-030917	5.8 J	mg/L	

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- "--" - Not applicable

Table 8

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February - March 2017

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	02/24/2017	LANG-GW-022417	0.38 J	Methylene chloride	1.7 J	<1.7 J	µg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

May 15, 2018

To: David Hodson

Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/428-NF

Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

Subject: Analytical Results and Reduced Validation of Reports 10423463, 10423466, 10423642, 10423643, 10423831, 10423834, 10424011, 10424012, 10424013, 10424014, 10424295, 10424306, 10424307, 10424308, 10424309, 10424310, 10424311, 10424312, 10424313, 10426000, 10426001, 10426003, 10426984, 10426986 and 10426987
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
March – April 2018

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during March and April 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for anions analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with two exceptions. Where a high tetrahydrofuran recovery was found the associated sample results were non-detect and were not impacted. Where a low bromomethane (methyl bromide) recovery was found the associated sample results were qualified as estimated due to the implied low bias (see Table 6).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias. Where extremely low recoveries were found the associated sample detections were qualified as estimated and the associated non-detect result was rejected due to the poor analytical efficiency demonstrated. A summary of the qualifications and exception is presented in Table 7.



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with the exception of a few low sulfide recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 7).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the exception of one high total dissolved solids (TDS) RPD. The associated sample results were qualified as estimated due to variability (see Table 8).

9. Field QA/QC Samples

The field QA/QC consisted of four trip blank samples and four field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, four trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, four field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.



11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exception noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs	
Asher-GW-032018	Asher Well	Water	03/20/2018	10:30	X	X	X	X	X	X	X	X	X	X	
FD4-032018	Asher Well	Water	03/20/2018	10:00	X	X	X	X	X	X	X	X	X	X	FD (Asher-GW-032018)
Atwood-GW-H-031918	Atwood House	Water	03/19/2018	13:00	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (Atwood-GW-H-031918)
GWFD1-031918	Atwood House	Water	03/19/2018	13:00	X	X	X	X	X	X	X	X	X	X	
Atwood-GW-S-031918	Atwood Shop	Water	03/19/2018	12:00	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Lang-GW-040318	Lang Well	Water	04/03/2018	09:45	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Lashaw-GW-031918	Lashaw Well (Domestic)	Water	03/19/2018	15:00	X	X	X	X	X	X	X	X	X	X	FD (Lashaw-GW-031918)
FD3-031918	Lashaw Well (Domestic)	Water	03/19/2018	14:30	X	X	X	X	X	X	X	X	X	X	
MarlowWell2-GW-031618	Out-of-Use Marlow Well (No. 2)	Water	03/16/2018	13:10	X	X	X	X	X	X	X	X	X	X	DUP - MS
Marlow-GW-041018	Marlow Well Influent	Water	04/10/2018	10:50	X	X	X	X	X	X	X	X	X	X	DUP - MS
MW1D-GW-031518	MW-1D	Water	03/15/2018	12:05	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW1S-GW-031618	MW-1S	Water	03/16/2018	11:05	X	X	X	X	X	X	X	X	X	X	
MW2D-GW-031518	MW-2D	Water	03/15/2018	14:40	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW3D-GW-031418	MW-3D	Water	03/14/2018	11:55	X	X	X	X	X	X	X	X	X	X	
MW4D-GW-031218	MW-4D	Water	03/12/2018	13:00	X	X	X	X	X	X	X	X	X	X	DUP
MW5D-GW-031318	MW-5D	Water	03/13/2018	11:45	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6D-GW-031218	MW-6D	Water	03/12/2018	11:30	X	X	X	X	X	X	X	X	X	X	
MW6S-GW-031618	MW-6S	Water	03/16/2018	08:30	X	X	X	X	X	X	X	X	X	X	DUP
MW6U-GW-031218	MW-6U	Water	03/12/2018	10:35	X	X	X	X	X	X	X	X	X	X	
MW7S-GW-031618	MW-7S	Water	03/16/2018	10:45	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW8S-GW-031618	MW-8S	Water	03/16/2018	10:30	X	X	X	X	X	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW9D-GW-031318	MW-9D	Water	03/13/2018	16:35	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW9S-GW-031618	MW-9S	Water	03/16/2018	11:45	X	X	X	X	X	X	X	X	X	X	X	
MW9U-GW-031418	MW-9U	Water	03/14/2018	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW10S-GW-031618	MW-10S	Water	03/16/2018	09:30	X	X	X	X	X	X	X	X	X	X	X	
MW11S-GW-031618	MW-11S	Water	03/16/2018	09:15	X	X	X	X	X	X	X	X	X	X	X	
MW12S-GW-031618	MW-12S	Water	03/16/2018	10:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW13S-GW-031418	MW-13S	Water	03/14/2018	16:10	X	X	X	X	X	X	X	X	X	X	X	
MW14D-GW-031318	MW-14D	Water	03/13/2018	13:55	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW15D-GW-031218	MW-15D	Water	03/12/2018	15:35	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW16D-GW-031218	MW-16D	Water	03/12/2018	17:50	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW17D-GW-031318	MW-17D	Water	03/13/2018	10:25	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW18D-GW-031218	MW-18D	Water	03/12/2018	17:05	X	X	X	X	X	X	X	X	X	X	X	
MW19D-GW-031318	MW-19D	Water	03/13/2018	17:25	X	X	X	X	X	X	X	X	X	X	X	
MW20D-GW-031518	MW-20D	Water	03/15/2018	16:00	X	X	X	X	X	X	X	X	X	X	X	
MW21D-GW-040318	MW-21D	Water	04/03/2018	11:40	X	X	X	X	X	X	X	X	X	X	X	
Randall-GW-041018	Randall Well Influent	Water	04/10/2018	09:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Silva-GW-032018	Silva Well	Water	03/20/2018	11:00	X	X	X	X	X	X	X	X	X	X	X	
Stark-GW-031918	Stark Well (W15)	Water	03/19/2018	14:00	X	X	X	X	X	X	X	X	X	X	X	
FD2-031918	Stark Well (W15)	Water	03/19/2018	13:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (Stark-GW-031918)
SG01-GW-032018	Stream Gauge 1	Water	03/20/2018	11:45												X
SG02-GW-032018	Stream Gauge 2	Water	03/20/2018	12:00												X

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Thorson-GW-031918	Thorson Well	Water	03/19/2018	11:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MarlowWellW20-GW-031518	Out-of-Use Marlow Well (W20)	Water	03/15/2018	10:15	X	X	X	X	X	X	X	X	X	X	X	
W26-GW-031418	Out-of-Use Freeman School Well (W26)	Water	03/14/2018	13:25	X	X	X	X	X	X	X	X	X	X	X	
Primary School Well-GW-031518	WS-5	Water	03/15/2018	09:00	X	X	X	X	X	X	X	X	X	X	X	
Trip Blank	Trip Blank	Water	03/13/2018	--											X	
Trip Blank	Trip Blank	Water	03/14/2018	--											X	
Trip Blank	Trip Blank	Water	03/16/2018	--											X	
Trip Blank	Trip Blank	Water	04/03/2018	--											X	

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010C ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Asher Well	Asher Well	Atwood House	Atwood House	Atwood Shop	Lang Well
	Sample Name:	Asher-GW-032018	FD4-032018	Atwood-GW-H-031918	GWFD1-031918	Atwood-GW-S-031918	Lang-GW-040318
	Sample Date:	03/20/2018	03/20/2018	03/19/2018	03/19/2018	03/19/2018	04/03/2018
			Duplicate		Duplicate		
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Asher Well	Asher Well	Atwood House	Atwood House	Atwood Shop	Lang Well
	Sample Name:	Asher-GW-032018	FD4-032018	Atwood-GW-H-031918	GWFD1-031918	Atwood-GW-S-031918	Lang-GW-040318
	Sample Date:	03/20/2018	03/20/2018	03/19/2018	03/19/2018	03/19/2018	04/03/2018
			Duplicate		Duplicate		
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID: Sample Name: Sample Date:	Asher Well Asher-GW-032018 03/20/2018	Asher Well FD4-032018 03/20/2018 Duplicate	Atwood House Atwood-GW-H-031918 03/19/2018	Atwood House GWFD1-031918 03/19/2018 Duplicate	Atwood Shop Atwood-GW-S-031918 03/19/2018	Lang Well Lang-GW-040318 04/03/2018
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	1.3 J
Methane	µg/L	<2.2 J	<2.2 J	<2.2 J	<1.1	<2.2 J
Metals						
Aluminum (dissolved)	µg/L	<8.6	<8.6	<8.6	<8.6	9.6 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	90.9	94.1	37.2	37.4	31.3
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	0.54 J
Calcium (dissolved)	µg/L	74400	76400	30500	30500	34400
Chromium (dissolved)	µg/L	0.74 J	0.91 J	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	80.0	71.5	20.3	26.4	61.7
Iron (dissolved)	µg/L	<16.7	<16.7	<16.7	<16.7	18.0 J
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	9.1 J
Magnesium (dissolved)	µg/L	21800	22600	12400	12500	11500
Manganese (dissolved)	µg/L	<0.38	0.48 J	1.7 J	1.6 J	9.1
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	9.6 J
Potassium (dissolved)	µg/L	1400 J	1460 J	2600	2630	1380 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Asher Well	Asher Well	Atwood House	Atwood House	Atwood Shop	Lang Well
	Sample Name:	Asher-GW-032018	FD4-032018	Atwood-GW-H-031918	GWFD1-031918	Atwood-GW-S-031918	Lang-GW-040318
	Sample Date:	03/20/2018	03/20/2018	03/19/2018	03/19/2018	03/19/2018	04/03/2018
			Duplicate		Duplicate		
Parameters	Unit						
Metals (Continued)							
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	23900	24700	13800	14000	12500	17900
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	10.6 J	10.9 J	5.4 J	5.3 J	6.8 J	5.5 J
Zinc (dissolved)	µg/L	44.0	34.3	87.8	102	5320	73.4
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	236	244	155	154	164	199
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	11.6	11.7	1.4	1.4	1.4	1.8
Nitrate (as N)	mg/L	7.9 J	8.0 J	0.66 J	0.66 J	1.0 J	0.44
Nitrite/Nitrate	mg/L	8.6	8.2	0.77	0.74	1.1	0.49
Sulfate	mg/L	44.4	44.6	4.1	4.1	3.7	2.3
Sulfide	mg/L	<0.0050	<0.0050	<0.0050 J	<0.0050 J	<0.0050 J	<0.0050
Total dissolved solids (TDS)	mg/L	412 J	402 J	196	201	234 J	239
Total organic carbon (TOC)	mg/L	1.4	1.4	0.35 J	0.36 J	0.35 J	<0.20

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID: Sample Name: Sample Date:	Lashaw Well (Domestic) Lashaw-GW-031918 03/19/2018	Lashaw Well (Domestic) FD3-031918 03/19/2018 Duplicate	Out-of-Use Marlow Well (No. 2) Marlow Well2-GW-031618 03/16/2018	Out-of-Use Marlow Well (No. 2) MarlowWell2-GW-031618 03/16/2018
Parameters					
Unit					
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	--
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	--
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	--
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	--
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	--
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	--
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	--
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	--
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	--
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	--
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	--
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	--
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	--
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	--
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	--
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	--
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	--
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	--
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	--
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	--
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	--
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	--
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	--
2-Hexanone	µg/L	<2.5	<2.5	<2.5	--
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	--
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	--
Acetone	µg/L	<8.8	<8.8	15.3 J	--
Acrolein	µg/L	<4.8	<4.8	<4.8	--
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	--
Benzene	µg/L	<0.13	<0.13	<0.13	--
Bromobenzene	µg/L	<0.16	<0.16	<0.16	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)
	Sample Name:	Lashaw-GW-031918	FD3-031918	Marlow Well2-GW-031618	MarlowWell2-GW-031618
	Sample Date:	03/19/2018	03/19/2018 Duplicate	03/16/2018	03/16/2018
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	--
Bromoform	µg/L	<1.0	<1.0	<1.0	--
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	--
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	--
Carbon tetrachloride	µg/L	0.82	1.2	66.0	--
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	--
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	--
Chloroethane	µg/L	<0.44	<0.44	<0.44	--
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	5.9	--
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	--
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	--
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	--
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	--
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	--
Dibromomethane	µg/L	<0.50	<0.50	<0.50	--
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	--
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	--
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	--
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	--
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	--
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	--
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	--
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	--
Methylene chloride	µg/L	<1.2	<1.2	<1.2	--
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	--
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	--
Naphthalene	µg/L	<0.42	<0.42	<0.42	--
o-Xylene	µg/L	<0.11	<0.11	<0.11	--
Styrene	µg/L	<0.14	<0.14	<0.14	--
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	--
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	--
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	--
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	--
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	--
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID: Sample Name: Sample Date:	Lashaw Well (Domestic) Lashaw-GW-031918 03/19/2018	Lashaw Well (Domestic) FD3-031918 03/19/2018 Duplicate	Out-of-Use Marlow Well (No. 2) Marlow Well2-GW-031618 03/16/2018	Out-of-Use Marlow Well (No. 2) MarlowWell2-GW-031618 03/16/2018
Parameters					
	Unit				
Volatile Organic Compounds (Continued)					
Toluene	µg/L	<0.17	<0.17	<0.17	--
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	--
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	--
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	--
Trichloroethene	µg/L	<0.18	<0.18	<0.18	--
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	--
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	--
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	--
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	--
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	--
Dissolved Gases					
Ethane	µg/L	<4.9	<4.9	--	<4.9
Ethene	µg/L	<0.68	<0.68	--	<0.68
Methane	µg/L	<2.2 J	<2.2 J	--	42.1
Metals					
Aluminum (dissolved)	µg/L	<8.6	<8.6	--	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	--	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	--	<5.2
Barium (dissolved)	µg/L	9.3 J	9.4 J	--	22.2
Beryllium (dissolved)	µg/L	<0.11	<0.11	--	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	--	<0.46
Calcium (dissolved)	µg/L	26000	26300	--	55800
Chromium (dissolved)	µg/L	<0.50	<0.50	--	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	--	<1.1
Copper (dissolved)	µg/L	6.5 J	7.2 J	--	<0.83
Iron (dissolved)	µg/L	<16.7	<16.7	--	1190
Lead (dissolved)	µg/L	<3.0	<3.0	--	<3.0
Magnesium (dissolved)	µg/L	13200	13400	--	15900
Manganese (dissolved)	µg/L	<0.38	<0.38	--	141
Mercury (dissolved)	µg/L	<0.062	<0.062	--	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	--	<1.1
Potassium (dissolved)	µg/L	3800	3840	--	931 J
Selenium (dissolved)	µg/L	<6.4	<6.4	--	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)
	Sample Name:	Lashaw-GW-031918	FD3-031918	Marlow Well2-GW-031618	MarlowWell2-GW-031618
	Sample Date:	03/19/2018	03/19/2018 Duplicate	03/16/2018	03/16/2018
Parameters	Unit				
Metals (Continued)					
Silver (dissolved)	µg/L	<0.27	<0.27	--	<0.27
Sodium (dissolved)	µg/L	15400	15600	--	15100
Thallium (dissolved)	µg/L	<4.8	4.9 J	--	<4.8
Vanadium (dissolved)	µg/L	10.6 J	10.6 J	--	4.6 J
Zinc (dissolved)	µg/L	45.5	37.0	--	12.1 J
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	146	143	--	220
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	--	<15.8
Chloride	mg/L	1.7	1.7	--	4.1 J
Nitrate (as N)	mg/L	2.4 J	2.5 J	--	1.8 J
Nitrite/Nitrate	mg/L	2.5	2.7	--	1.8
Sulfate	mg/L	5.7	5.7	--	5.5 J
Sulfide	mg/L	<0.0050 J	<0.0050 J	--	<0.0050
Total dissolved solids (TDS)	mg/L	203	202	--	276
Total organic carbon (TOC)	mg/L	0.42 J	0.43 J	--	1.7

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March - April 2018**

Location ID:	Marlow Well Influent	MW-1D	MW-1S	MW-2D	MW-3D	MW-4D	MW-5D
Sample Name:	Marlow-GW-041018	MW1D-GW-031518	MW1S-GW-031618	MW2D-GW-031518	MW3D-GW-031418	MW4D-GW-031218	MW5D-GW-031318
Sample Date:	04/10/2018	03/15/2018	03/16/2018	03/15/2018	03/14/2018	03/12/2018	03/13/2018
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	Marlow Well Influent	MW-1D	MW-1S	MW-2D	MW-3D	MW-4D	MW-5D
Sample Name:	Marlow-GW-041018	MW1D-GW-031518	MW1S-GW-031618	MW2D-GW-031518	MW3D-GW-031418	MW4D-GW-031218	MW5D-GW-031318
Sample Date:	04/10/2018	03/15/2018	03/16/2018	03/15/2018	03/14/2018	03/12/2018	03/13/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5 J	<1.5 J
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	112	<0.20	<0.20	1.2	<0.20	3.3
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	7.7	<0.46	<0.46	<0.46	<0.46	0.55 J
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	Marlow Well Influent	MW-1D	MW-1S	MW-2D	MW-3D	MW-4D	MW-5D
Sample Name:	Marlow-GW-041018	MW1D-GW-031518	MW1S-GW-031618	MW2D-GW-031518	MW3D-GW-031418	MW4D-GW-031218	MW5D-GW-031318
Sample Date:	04/10/2018	03/15/2018	03/16/2018	03/15/2018	03/14/2018	03/12/2018	03/13/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	0.75 J	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<1.6 J	<6.0 J	<2.8 J	44.9	<3.6 J	<4.0 J
Metals							
Aluminum (dissolved)	µg/L	<8.6	<8.6	3460	<8.6	36.1 J	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	38.0	72.6	296	104	44.1	112
Beryllium (dissolved)	µg/L	<0.11	<0.11	0.13 J	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	50300	52100	113000	39000	32000	59200
Chromium (dissolved)	µg/L	<0.50	<0.50	1.9 J	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	1.7 J	1.4 J	<1.1	<1.1
Copper (dissolved)	µg/L	9.4 J	<0.83	3.8 J	<0.83	<0.83	0.84 J
Iron (dissolved)	µg/L	<16.7	<16.7	3110	895	41.0 J	<16.7
Lead (dissolved)	µg/L	<3.0	<3.0	4.7 J	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	14700	12800	31200	11100	9540	17600
Manganese (dissolved)	µg/L	<0.38	72.2	36.7	630	8.4	17.9
Mercury (dissolved)	µg/L	<0.062	<0.062	0.086 J	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	1.6 J	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1820 J	1580 J	556 J	2540	1310 J	2340 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	Marlow Well Influent	MW-1D	MW-1S	MW-2D	MW-3D	MW-4D	MW-5D	
Sample Name:	Marlow-GW-041018	MW1D-GW-031518	MW1S-GW-031618	MW2D-GW-031518	MW3D-GW-031418	MW4D-GW-031218	MW5D-GW-031318	
Sample Date:	04/10/2018	03/15/2018	03/16/2018	03/15/2018	03/14/2018	03/12/2018	03/13/2018	
Parameters	Unit							
Metals (Continued)								
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	14500	11200	42200	16600	13000	31400	22400
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	9.0 J	1.9 J	24.8	3.7 J	1.6 J	13.8 J	7.2 J
Zinc (dissolved)	µg/L	21.8	<1.8	17.5 J	<1.8	2.1 J	17.2 J	<1.8
General Chemistry								
Alkalinity, total (as CaCO ₃)	mg/L	166	206	457	184	145	131	225
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	<15.8	<15.8	24.6 J	<15.8
Chloride	mg/L	16.5 J	1.7 J	7.3 J	1.4 J	1.4	53.8	1.2 J
Nitrate (as N)	mg/L	3.9 J	0.095 J	0.062 J	0.11 J	0.15	0.84	0.21
Nitrite/Nitrate	mg/L	3.9	0.097	0.054	0.11	0.17	0.73	0.24
Sulfate	mg/L	13.7 J	3.5 J	19.4 J	<0.97 J	2.6	10.9	2.8
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	<0.0050 J	<0.0050	0.028	<0.0050
Total dissolved solids (TDS)	mg/L	288	236	528	211	188	287	257
Total organic carbon (TOC)	mg/L	0.84 J	0.75 J	3.6	0.75 J	0.36 J	2.5	0.62 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6D-GW-031218	MW6S-GW-031618	MW6U-GW-031218	MW7S-GW-031618	MW8S-GW-031618	MW9D-GW-031318	MW9S-GW-031618
Sample Date:	03/12/2018	03/16/2018	03/12/2018	03/16/2018	03/16/2018	03/13/2018	03/16/2018
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.29
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.30
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.38
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.44
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.29
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.36
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.35
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.29
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<1.3
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.36
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<2.1
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.42
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.30
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.82
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<1.2
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.36
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.32
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.26
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.21
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<45.2
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<2.6
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.79
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<4.8
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.41
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.25
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.26
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<1.1
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8	<17.7
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<9.7
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<9.8
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.25
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.31

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6D-GW-031218	MW6S-GW-031618	MW6U-GW-031218	MW7S-GW-031618	MW8S-GW-031618	MW9D-GW-031318	MW9S-GW-031618
Sample Date:	03/12/2018	03/16/2018	03/12/2018	03/16/2018	03/16/2018	03/13/2018	03/16/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<2.1
Bromomethane (Methyl bromide)	µg/L	<1.5 J	<1.5	<1.5 J	<1.5	<1.5 J	<3.1
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	<0.37	<0.74
Carbon tetrachloride	µg/L	2.4	<0.20	55.7	<0.20	147	289
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.27
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.76
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.88
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	2.2	<0.46	49.2	53.4
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<2.2
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.23
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.28
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.27
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.63
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.77
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.25
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.27
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.96
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.28
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.49
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	1.7
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<2.3
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.27
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.25
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.84
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.22
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.29
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.23
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<4.4
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.26
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.29
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.32
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<8.6

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6D-GW-031218	MW6S-GW-031618	MW6U-GW-031218	MW7S-GW-031618	MW8S-GW-031618	MW9D-GW-031318	MW9S-GW-031618
Sample Date:	03/12/2018	03/16/2018	03/12/2018	03/16/2018	03/16/2018	03/13/2018	03/16/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.42
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.27
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8	<5.7
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.36
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.26
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.55
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<3.0
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.19
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.49
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<3.6 J	<3.0 J	<3.6 J	<2.9 J	<2.8 J	<2.8 J
Metals							
Aluminum (dissolved)	µg/L	389	683	82.4 J	37.8 J	11.6 J	11.5 J
Antimony (dissolved)	µg/L	<3.1	<3.1	3.2 J	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	23.1	49.5	47.2	15.8	36.1	68.2
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	34100	36100	63000	11300	44900	67000
Chromium (dissolved)	µg/L	0.59 J	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (dissolved)	µg/L	1.4 J	<1.1	<1.1	<1.1	<1.1	<1.1
Copper (dissolved)	µg/L	1.8 J	1.2 J	0.93 J	1.8 J	1.5 J	<0.83
Iron (dissolved)	µg/L	547	823	91.2	81.4	16.9 J	20.4 J
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	15300	9960	19300	2420	10900	14900
Manganese (dissolved)	µg/L	578	5.7	4.1 J	4.6 J	20.2	9.0
Mercury (dissolved)	µg/L	<0.062	<0.062	0.34	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	7180	1050 J	1980 J	1800 J	423 J	1530 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S
Sample Name:	MW6D-GW-031218	MW6S-GW-031618	MW6U-GW-031218	MW7S-GW-031618	MW8S-GW-031618	MW9D-GW-031318	MW9S-GW-031618
Sample Date:	03/12/2018	03/16/2018	03/12/2018	03/16/2018	03/16/2018	03/13/2018	03/16/2018
Parameters	Unit						
Metals (Continued)							
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	18400	12400	15600	2700	11900	15200
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	17.8	6.5 J	5.6 J	1.2 J	1.4 J	1.3 J
Zinc (dissolved)	µg/L	3.6 J	7.1 J	6.4 J	17.7 J	9.8 J	<1.8
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	188	161	258	36.7	86.4	162
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	21.0 J	<15.8	<15.8	<15.8
Chloride	mg/L	3.3	1.2 J	5.4	2.4 J	2.2 J	10.8
Nitrate (as N)	mg/L	0.54 J	0.13 J	2.1 J	1.2 J	22.6 J	4.2
Nitrite/Nitrate	mg/L	0.59	0.14	2.0	1.3	9.1	4.2
Sulfate	mg/L	5.3	1.9 J	9.6	2.9 J	19.1 J	33.1
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050	<0.0050 J	<0.0050 J	<0.0050
Total dissolved solids (TDS)	mg/L	240	214	324	91.0	294	299
Total organic carbon (TOC)	mg/L	0.53 J	1.2	1.0	1.5	1.1	0.77 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D	MW-15D
Sample Name:	MW9U-GW-031418	MW10S-GW-031618	MW11S-GW-031618	MW12S-GW-031618	MW13S-GW-031418	MW14D-GW-031318	MW15D-GW-031218
Sample Date:	03/14/2018	03/16/2018	03/16/2018	03/16/2018	03/14/2018	03/13/2018	03/12/2018
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.30	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.38	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.44	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.35	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<1.3	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<2.1	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.42	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.30	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.82	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<1.2	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.32	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.21	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<45.2	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<2.6	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.79	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<4.8	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.41	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<5.0	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.25	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<1.1	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<17.7	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<9.7	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<9.8	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.25	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.31	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D	MW-15D
Sample Name:	MW9U-GW-031418	MW10S-GW-031618	MW11S-GW-031618	MW12S-GW-031618	MW13S-GW-031418	MW14D-GW-031318	MW15D-GW-031218
Sample Date:	03/14/2018	03/16/2018	03/16/2018	03/16/2018	03/14/2018	03/13/2018	03/12/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Bromodichloromethane	µg/L	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<2.1	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<3.1	<1.5	<1.5	<1.5	<1.5 J	<1.5 J
Carbon disulfide	µg/L	0.79 J	<0.37	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	772	7.3	<0.20	<0.20	<0.20	9.5
Chlorobenzene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.76	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.88	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	17.0	<0.46	<0.46	<0.46	<0.46	0.48 J
Chloromethane (Methyl chloride)	µg/L	<2.2	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.23	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.28	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.27	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.63	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.77	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.25	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.96	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.28	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.49	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<2.3	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.27	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.25	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.84	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.22	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.23	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<4.4	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.29	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.32	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<8.6	<4.3	<4.3	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D	MW-15D
Sample Name:	MW9U-GW-031418	MW10S-GW-031618	MW11S-GW-031618	MW12S-GW-031618	MW13S-GW-031418	MW14D-GW-031318	MW15D-GW-031218
Sample Date:	03/14/2018	03/16/2018	03/16/2018	03/16/2018	03/14/2018	03/13/2018	03/12/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Toluene	µg/L	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.42	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.27	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<5.7	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.36	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.26	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.55	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<3.0	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.19	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.49	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<3.6 J	<5.5 J	<2.8 J	<3.5 J	<2.8 J	<4.7 J
Metals							
Aluminum (dissolved)	µg/L	<8.6	24.3 J	28.7 J	626	<8.6	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	27.3	63.8	49.3	199	70.4	31.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	53100	77000	48000	80300	38400	30600
Chromium (dissolved)	µg/L	1.5 J	<0.50	<0.50	<0.50	0.76 J	<0.50
Cobalt (dissolved)	µg/L	<1.1	1.5 J	<1.1	1.1 J	<1.1	1.7 J
Copper (dissolved)	µg/L	<0.83	<0.83	<0.83	1.1 J	<0.83	<0.83
Iron (dissolved)	µg/L	22.8 J	33.2 J	40.2 J	198	<16.7	331
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium (dissolved)	µg/L	14100	21800	13900	23900	11300	9170
Manganese (dissolved)	µg/L	6.6	37.0	49.7	16.6	<0.38	630
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	16.3 J	<1.1	<1.1	1.4 J	<1.1	6.0 J
Potassium (dissolved)	µg/L	2610	553 J	875 J	528 J	1290 J	470 J
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D	MW-15D
Sample Name:	MW9U-GW-031418	MW10S-GW-031618	MW11S-GW-031618	MW12S-GW-031618	MW13S-GW-031418	MW14D-GW-031318	MW15D-GW-031218
Sample Date:	03/14/2018	03/16/2018	03/16/2018	03/16/2018	03/14/2018	03/13/2018	03/12/2018
Parameters	Unit						
Metals (Continued)							
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	29300	13900	19900	36400	15800	29400
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	5.8 J	3.8 J	6.2 J	3.5 J	8.8 J	4.0 J
Zinc (dissolved)	µg/L	4.1 J	3.9 J	7.8 J	5.4 J	3.2 J	2.3 J
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	155	314	218	243	172	165
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	63.9	<15.8	16.4 J
Chloride	mg/L	35.5	<0.77 J	<1.2 J	40.2 J	<1.2 J	2.0
Nitrate (as N)	mg/L	5.6 J	0.21 J	0.075 J	7.4 J	0.22	0.050 J
Nitrite/Nitrate	mg/L	5.9	0.25	0.066	8.5	0.26	0.029
Sulfate	mg/L	30.8	1.8 J	2.7 J	38.0 J	4.6	11.3
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	<0.025 J	<0.0050	<0.0050
Total dissolved solids (TDS)	mg/L	334	316	251	484	215	231
Total organic carbon (TOC)	mg/L	1.1	0.46 J	0.40 J	2.3	0.57 J	4.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D	MW-21D	Randall Well Influent
Sample Name:	MW16D-GW-031218	MW17D-GW-031318	MW18D-GW-031218	MW19D-GW-031318	MW20D-GW-031518	MW21D-GW-040318	Randall-GW-041018
Sample Date:	03/12/2018	03/13/2018	03/12/2018	03/13/2018	03/15/2018	04/03/2018	04/10/2018
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D	MW-21D	Randall Well Influent
Sample Name:	MW16D-GW-031218	MW17D-GW-031318	MW18D-GW-031218	MW19D-GW-031318	MW20D-GW-031518	MW21D-GW-040318	Randall-GW-041018
Sample Date:	03/12/2018	03/13/2018	03/12/2018	03/13/2018	03/15/2018	04/03/2018	04/10/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5 J	<1.5	<1.5 J	<1.5 J	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	1.3	<0.37	0.42 J	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	423	29.5	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	18.9	1.3	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D	MW-21D	Randall Well Influent
Sample Name:	MW16D-GW-031218	MW17D-GW-031318	MW18D-GW-031218	MW19D-GW-031318	MW20D-GW-031518	MW21D-GW-040318	Randall-GW-041018
Sample Date:	03/12/2018	03/13/2018	03/12/2018	03/13/2018	03/15/2018	04/03/2018	04/10/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases							
Ethane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Ethene	µg/L	<0.68	5.9 J	<0.68	<0.68	<0.68	<0.68
Methane	µg/L	<3.6 J	<3.7 J	<3.6 J	<4.0 J	<1.1	<5.8 J
Metals							
Aluminum (dissolved)	µg/L	<8.6	54.6 J	<8.6	11.5 J	1360	10.0 J
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2
Barium (dissolved)	µg/L	59.5	102	50.3	12.4	37.8	67.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46
Calcium (dissolved)	µg/L	63500	41700	22300	43100	57700	21600
Chromium (dissolved)	µg/L	0.63 J	<0.50	<0.50	<0.50	0.76 J	<0.50
Cobalt (dissolved)	µg/L	1.1 J	2.8 J	<1.1	<1.1	1.2 J	<1.1
Copper (dissolved)	µg/L	<0.83	<0.83	<0.83	<0.83	1.8 J	<0.83
Iron (dissolved)	µg/L	18.5 J	415	106	25.6 J	1290	197
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	3.4 J
Magnesium (dissolved)	µg/L	18900	18500	15500	18600	22500	19800
Manganese (dissolved)	µg/L	0.65 J	296	45.4	3.9 J	16.0	80.8
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	<0.062	<0.062	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	1.2 J	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1510 J	11300	3800	4400	4110	4370
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D	MW-21D	Randall Well Influent
Sample Name:	MW16D-GW-031218	MW17D-GW-031318	MW18D-GW-031218	MW19D-GW-031318	MW20D-GW-031518	MW21D-GW-040318	Randall-GW-041018
Sample Date:	03/12/2018	03/13/2018	03/12/2018	03/13/2018	03/15/2018	04/03/2018	04/10/2018
Parameters	Unit						
Metals (Continued)							
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	18300	44200	19200	15200	20400	21900
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	9.5 J	1.8 J	0.53 J	6.3 J	10.5 J	6.0 J
Zinc (dissolved)	µg/L	<1.8	<1.8	<1.8	2.5 J	56.1	<1.8
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	223	200	159	179	272	174
Chemical oxygen demand (COD)	mg/L	30.8 J	52.2	<15.8	<15.8	<15.8	<15.8
Chloride	mg/L	7.3	28.1	2.4	7.1	5.3 J	2.5
Nitrate (as N)	mg/L	6.4	0.039 J	<0.0079	4.6	1.1 J	<0.0079
Nitrite/Nitrate	mg/L	6.8	0.026	0.011 J	4.5	1.2	<0.0075
Sulfate	mg/L	24.7	69.7	7.7	22.9	7.3 J	7.2
Sulfide	mg/L	<0.0050	0.013 J	<0.0050	<0.0050	<0.0050 J	<0.0050
Total dissolved solids (TDS)	mg/L	347	397	192	281	311	212
Total organic carbon (TOC)	mg/L	1.1	10.3	0.48 J	0.71 J	0.82 J	<0.20

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
	Sample Name:	Silva-GW-032018	Stark-GW-031918	FD2-031918	SG01-GW-032018	SG02-GW-032018	Thorson-GW-031918
	Sample Date:	03/20/2018	03/19/2018	03/19/2018	03/20/2018	03/20/2018	03/19/2018
				Duplicate			
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	<0.098	<0.098	<0.098	<0.098	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Benzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
Sample Name:	Silva-GW-032018	Stark-GW-031918	FD2-031918	SG01-GW-032018	SG02-GW-032018	Thorson-GW-031918
Sample Date:	03/20/2018	03/19/2018	03/19/2018 Duplicate	03/20/2018	03/20/2018	03/19/2018
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	<0.46	<0.46	<0.46	<0.46
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
Sample Name:	Silva-GW-032018	Stark-GW-031918	FD2-031918	SG01-GW-032018	SG02-GW-032018	Thorson-GW-031918
Sample Date:	03/20/2018	03/19/2018	03/19/2018 Duplicate	03/20/2018	03/20/2018	03/19/2018
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Toluene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8	<2.8	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096	<0.096	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
Dissolved Gases						
Ethane	µg/L	<4.9	<4.9	<4.9	--	<4.9
Ethene	µg/L	<0.68	<0.68	<0.68	--	<0.68
Methane	µg/L	<1.1	<2.2 J	<2.2 J	--	<2.6 J
Metals						
Aluminum (dissolved)	µg/L	<8.6	<8.6	<8.6	--	<8.6
Antimony (dissolved)	µg/L	<3.1	<3.1	<3.1	--	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2	<5.2	--	<5.2
Barium (dissolved)	µg/L	0.31 J	35.9	37.1	--	55.0
Beryllium (dissolved)	µg/L	<0.11	<0.11	<0.11	--	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46	<0.46	--	<0.46
Calcium (dissolved)	µg/L	122 J	34000	34900	--	24800
Chromium (dissolved)	µg/L	<0.50	<0.50	<0.50	--	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1	<1.1	--	<1.1
Copper (dissolved)	µg/L	23.8	66.0	75.4	--	<0.83
Iron (dissolved)	µg/L	<16.7	<16.7	<16.7	--	1980
Lead (dissolved)	µg/L	<3.0	<3.0	<3.0	--	<3.0
Magnesium (dissolved)	µg/L	32.6 J	12100	12400	--	12600
Manganese (dissolved)	µg/L	<0.38	0.44 J	0.72 J	--	33.0
Mercury (dissolved)	µg/L	<0.062	<0.062	<0.062	--	<0.062
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	--	<1.1
Potassium (dissolved)	µg/L	<126	1840 J	1920 J	--	4060
Selenium (dissolved)	µg/L	<6.4	<6.4	<6.4	--	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
	Sample Name:	Silva-GW-032018	Stark-GW-031918	FD2-031918	SG01-GW-032018	SG02-GW-032018	Thorson-GW-031918
	Sample Date:	03/20/2018	03/19/2018	03/19/2018 Duplicate	03/20/2018	03/20/2018	03/19/2018
Parameters	Unit						
Metals (Continued)							
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27	--	--	<0.27
Sodium (dissolved)	µg/L	83700	17500	18100	--	--	14900
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8	--	--	<4.8
Vanadium (dissolved)	µg/L	3.2 J	5.7 J	5.8 J	--	--	<0.42
Zinc (dissolved)	µg/L	69.1	81.8	84.1	--	--	30.8
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	170	108	106	--	--	148
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8	--	--	<15.8
Chloride	mg/L	8.4	1.3	1.3	--	--	1.3
Nitrate (as N)	mg/L	0.58 J	17.9 J	18.0 J	--	--	<0.0079 J
Nitrite/Nitrate	mg/L	0.67	19.9	18.4	--	--	0.012 J
Sulfate	mg/L	9.3	11.4	11.3	--	--	2.9
Sulfide	mg/L	<0.0050	<0.0050 J	<0.0050 J	--	--	0.0070 J
Total dissolved solids (TDS)	mg/L	263 J	270	273	--	--	200
Total organic carbon (TOC)	mg/L	0.57 J	0.51 J	0.45 J	--	--	0.32 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) MarlowWellW20-GW-031518 03/15/2018	Out-of-Use Freeman School Well (W26) W26-GW-031418 03/14/2018	WS-5 Primary School Well-GW-031518 03/15/2018
Parameters	Unit			
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	µg/L	<0.14	<0.14	<0.14
1,1,1-Trichloroethane	µg/L	<0.15	<0.15	<0.15
1,1,2,2-Tetrachloroethane	µg/L	<0.19	<0.19	<0.19
1,1,2-Trichloroethane	µg/L	<0.22	<0.22	<0.22
1,1-Dichloroethane	µg/L	<0.14	<0.14	<0.14
1,1-Dichloroethene	µg/L	<0.18	<0.18	<0.18
1,1-Dichloropropene	µg/L	<0.18	<0.18	<0.18
1,2,3-Trichlorobenzene	µg/L	<0.14	<0.14	<0.14
1,2,3-Trichloropropane	µg/L	<0.66	<0.66	<0.66
1,2,4-Trichlorobenzene	µg/L	<0.18	<0.18	<0.18
1,2,4-Trimethylbenzene	µg/L	0.22 J	<0.098	<0.098
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.0	<1.0	<1.0
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.17	<0.17	<0.17
1,2-Dichlorobenzene	µg/L	<0.21	<0.21	<0.21
1,2-Dichloroethane	µg/L	<0.15	<0.15	<0.15
1,2-Dichloroethene (total)	µg/L	<0.41	<0.41	<0.41
1,2-Dichloropropane	µg/L	<0.62	<0.62	<0.62
1,3,5-Trimethylbenzene	µg/L	<0.18	<0.18	<0.18
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.13	<0.13	<0.13
1,4-Dichlorobenzene	µg/L	<0.10	<0.10	<0.10
1,4-Dioxane	µg/L	<22.6	<22.6	<22.6
2,2,4-Trimethylpentane	µg/L	<1.3	<1.3	<1.3
2,2-Dichloropropane	µg/L	<0.40	<0.40	<0.40
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<2.4	<2.4	<2.4
2-Chlorotoluene	µg/L	<0.20	<0.20	<0.20
2-Hexanone	µg/L	<2.5	<2.5	<2.5
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.12	<0.12	<0.12
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.55	<0.55	<0.55
Acetone	µg/L	<8.8	<8.8	<8.8
Acrolein	µg/L	<4.8	<4.8	<4.8
Acrylonitrile	µg/L	<4.9	<4.9	<4.9
Benzene	µg/L	0.14 J	<0.13	<0.13
Bromobenzene	µg/L	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) MarlowWellW20-GW-031518 03/15/2018	Out-of-Use Freeman School Well (W26) W26-GW-031418 03/14/2018	WS-5 Primary School Well-GW-031518 03/15/2018
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Bromodichloromethane	µg/L	<0.20	<0.20	<0.20
Bromoform	µg/L	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	<1.5	<1.5	<1.5
Carbon disulfide	µg/L	<0.37	<0.37	<0.37
Carbon tetrachloride	µg/L	<0.20	29.7	33.6
Chlorobenzene	µg/L	<0.14	<0.14	<0.14
Chlorobromomethane	µg/L	<0.38	<0.38	<0.38
Chloroethane	µg/L	<0.44	<0.44	<0.44
Chloroform (Trichloromethane)	µg/L	<0.46	2.4	1.7
Chloromethane (Methyl chloride)	µg/L	<1.1	<1.1	<1.1
cis-1,2-Dichloroethene	µg/L	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L	<0.12	<0.12	<0.12
Cymene (p-Isopropyltoluene)	µg/L	<0.14	<0.14	<0.14
Dibromochloromethane	µg/L	<0.13	<0.13	<0.13
Dibromomethane	µg/L	<0.50	<0.50	<0.50
Dichlorodifluoromethane (CFC-12)	µg/L	<0.31	<0.31	<0.31
Dichlorofluoromethane	µg/L	<0.38	<0.38	<0.38
Diisopropyl ether	µg/L	<0.12	<0.12	<0.12
Ethylbenzene	µg/L	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.48	<0.48	<0.48
Isopropyl benzene	µg/L	<0.14	<0.14	<0.14
m&p-Xylenes	µg/L	<0.24	<0.24	<0.24
Methyl tert butyl ether (MTBE)	µg/L	<0.14	<0.14	<0.14
Methylene chloride	µg/L	<1.2	<1.2	<1.2
N-Butylbenzene	µg/L	<0.13	<0.13	<0.13
N-Propylbenzene	µg/L	<0.12	<0.12	<0.12
Naphthalene	µg/L	<0.42	<0.42	<0.42
o-Xylene	µg/L	<0.11	<0.11	<0.11
Styrene	µg/L	<0.14	<0.14	<0.14
tert-Amyl methyl ether	µg/L	<0.12	<0.12	<0.12
tert-Butyl alcohol	µg/L	<2.2	<2.2	<2.2
tert-Butyl ethyl ether	µg/L	<0.13	<0.13	<0.13
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.16	<0.16	<0.16
Tetrahydrofuran	µg/L	<4.3	<4.3	<4.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) MarlowWellW20-GW-031518 03/15/2018	Out-of-Use Freeman School Well (W26) W26-GW-031418 03/14/2018	WS-5 Primary School Well-GW-031518 03/15/2018
Parameters	Unit		
Volatile Organic Compounds (Continued)			
Toluene	µg/L	<0.17	<0.17
trans-1,2-Dichloroethene	µg/L	<0.21	<0.21
trans-1,3-Dichloropropene	µg/L	<0.14	<0.14
trans-1,4-Dichloro-2-butene	µg/L	<2.8	<2.8
Trichloroethene	µg/L	<0.18	<0.18
Trichlorofluoromethane (CFC-11)	µg/L	<0.13	<0.13
Trifluorotrchloroethane (CFC-113)	µg/L	<0.28	<0.28
Vinyl acetate	µg/L	<1.5	<1.5
Vinyl chloride	µg/L	<0.096	<0.096
Xylenes (total)	µg/L	<0.24	<0.24
Dissolved Gases			
Ethane	µg/L	<4.9	<4.9
Ethene	µg/L	<0.68	<0.68
Methane	µg/L	341	<3.6 J 37.1
Metals			
Aluminum (dissolved)	µg/L	<8.6	<8.6 18.4 J
Antimony (dissolved)	µg/L	<3.1	<3.1
Arsenic (dissolved)	µg/L	<5.2	<5.2
Barium (dissolved)	µg/L	4.2 J	6.3 J 62.7
Beryllium (dissolved)	µg/L	<0.11	<0.11
Cadmium (dissolved)	µg/L	<0.46	<0.46
Calcium (dissolved)	µg/L	14500	37900 44700
Chromium (dissolved)	µg/L	<0.50	<0.50
Cobalt (dissolved)	µg/L	<1.1	<1.1
Copper (dissolved)	µg/L	<0.83	<0.83 6.6 J
Iron (dissolved)	µg/L	50.8	<16.7 <16.7
Lead (dissolved)	µg/L	<3.0	<3.0
Magnesium (dissolved)	µg/L	7160	11200 17800
Manganese (dissolved)	µg/L	53.2	<0.38 0.55 J
Mercury (dissolved)	µg/L	<0.062	<0.062 <0.062
Nickel (dissolved)	µg/L	<1.1	<1.1 1.9 J
Potassium (dissolved)	µg/L	2050 J	2320 J 4320
Selenium (dissolved)	µg/L	<6.4	<6.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) MarlowWellW20-GW-031518 03/15/2018	Out-of-Use Freeman School Well (W26) W26-GW-031418 03/14/2018	WS-5 Primary School Well-GW-031518 03/15/2018
Parameters	Unit			
Metals (Continued)				
Silver (dissolved)	µg/L	<0.27	<0.27	<0.27
Sodium (dissolved)	µg/L	9610	12900	15200
Thallium (dissolved)	µg/L	<4.8	<4.8	<4.8
Vanadium (dissolved)	µg/L	<0.42	7.5 J	14.9 J
Zinc (dissolved)	µg/L	2.2 J	56.0	42.5
General Chemistry				
Alkalinity, total (as CaCO ₃)	mg/L	91.5	150	202
Chemical oxygen demand (COD)	mg/L	<15.8	<15.8	<15.8
Chloride	mg/L	2.2 J	4.6	6.7 J
Nitrate (as N)	mg/L	R	2.4	1.2 J
Nitrite/Nitrate	mg/L	<0.0075	2.6	1.4
Sulfate	mg/L	<0.56 J	10.7	6.6 J
Sulfide	mg/L	<0.0050 J	<0.0050 J	<0.0050 J
Total dissolved solids (TDS)	mg/L	87.0	226	255
Total organic carbon (TOC)	mg/L	1.1	0.77 J	0.55 J

Notes:

"--" - Not analyzed

< - Not detected at the associated reporting limit

< () J - Not detected; associated reporting limit is estimated

J - Estimated concentration

R - Rejected

Table 4

Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW6U-GW-031218	48 hours	>48 hours	Nitrate (as N)	2.1 J	mg/L
	MW6D-GW-031218	48 hours	>48 hours	Nitrate (as N)	0.54 J	mg/L
	MW17D-GW-031318	48 hours	>48 hours	Nitrate (as N)	0.039 J	mg/L
	MW9U-GW-031418	48 hours	>48 hours	Nitrate (as N)	5.6 J	mg/L
	MarlowWellW20-GW-031518	48 hours	>48 hours	Nitrate (as N)	R	
	MW1D-GW-031518	48 hours	>48 hours	Nitrate (as N)	0.095 J	mg/L
	Primary School Well-GW-031518	48 hours	>48 hours	Nitrate (as N)	1.2 J	mg/L
	Thorson-GW-031918	48 hours	>48 hours	Nitrate (as N)	<0.0079 J	mg/L
	Atwood-GW-S-031918	48 hours	>48 hours	Nitrate (as N)	1.0 J	mg/L
	Stark-GW-031918	48 hours	>48 hours	Nitrate (as N)	17.9 J	mg/L
	FD2-031918	48 hours	>48 hours	Nitrate (as N)	18.0 J	mg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Dissolved Gases	Methane	03/19/2018	3.6 J	MW16D-GW-031218	3.0 J	<3.6 J	µg/L
				MW4D-GW-031218	3.4 J	<3.6 J	µg/L
				MW6U-GW-031218	3.0 J	<3.6 J	µg/L
				MW18D-GW-031218	3.4 J	<3.6 J	µg/L
				MW6D-GW-031218	3.0 J	<3.6 J	µg/L
				MW15D-GW-031218	3.6 J	<3.6 J	µg/L
				MW9D-GW-031318	2.4 J	<3.6 J	µg/L
				MW19D-GW-031318	4.0 J	<4.0 J	µg/L
				MW5D-GW-031318	4.0 J	<4.0 J	µg/L
				MW14D-GW-031318	4.7 J	<4.7 J	µg/L
				MW17D-GW-031318	3.7 J	<3.7 J	µg/L
				MW9U-GW-031418	3.4 J	<3.6 J	µg/L
				MW3D-GW-031418	2.5 J	<3.6 J	µg/L
				W26-GW-031418	2.6 J	<3.6 J	µg/L
		03/20/2018	2.4 J	MW13S-GW-031418	2.8 J	<2.8 J	µg/L
				MW1D-GW-031518	6.0 J	<6.0 J	µg/L
		03/21/2018	2.8 J	MW11S-GW-031618	1.7 J	<2.8 J	µg/L
				MW10S-GW-031618	5.5 J	<5.5 J	µg/L
				MW12S-GW-031618	3.5 J	<3.5 J	µg/L

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units		
Dissolved Gases	Methane	03/21/2018	2.8 J	MW8S-GW-031618	1.8 J	<2.8 J	µg/L		
				MW7S-GW-031618	2.9 J	<2.9 J	µg/L		
				MW1S-GW-031618	2.6 J	<2.8 J	µg/L		
				MW9S-GW-031618	2.0 J	<2.8 J	µg/L		
		03/26/2018	3.0 J	MW6S-GW-031618	1.4 J	<3.0 J	µg/L		
				Thorson-GW-031918	2.6 J	<2.6 J	µg/L		
				Atwood-GW-S-031918	1.7 J	<2.2 J	µg/L		
				Atwood-GW-H-031918	2.0 J	<2.2 J	µg/L		
				Stark-GW-031918	1.2 J	<2.2 J	µg/L		
				Lashaw-GW-031918	1.3 J	<2.2 J	µg/L		
				Asher-GW-032018	1.4 J	<2.2 J	µg/L		
				FD2-031918	1.3 J	<2.2 J	µg/L		
				FD3-031918	2.0 J	<2.2 J	µg/L		
				FD4-032018	1.6 J	<2.2 J	µg/L		
				04/09/2018	5.8 J	Lang-GW-040318	3.5 J	<5.8 J	µg/L
						MW21D-GW-040318	3.2 J	<5.8 J	µg/L
				04/12/2018	1.4 J	Marlow-GW-041018	1.6 J	<1.6 J	µg/L

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
General Chemistry	Chloride	03/16/2018	0.27 J	MW13S-GW-031418	1.2 J	<1.2 J	mg/L
		03/17/2018	0.29 J	MW11S-GW-031618	1.2 J	<1.2 J	mg/L
				MW10S-GW-031618	0.77 J	<0.77 J	mg/L
	Sulfate	03/17/2018	0.49 J	MarlowWellW20-GW-031518	0.56 J	<0.56 J	mg/L
				MW2D-GW-031518	0.97 J	<0.97 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	Bromomethane (Methyl bromide)	03/21/2018	18	30-145	MW16D-GW-031218	<1.5 J	µg/L
					MW4D-GW-031218	<1.5 J	µg/L
					MW6U-GW-031218	<1.5 J	µg/L
					MW18D-GW-031218	<1.5 J	µg/L
					MW6D-GW-031218	<1.5 J	µg/L
					MW15D-GW-031218	<1.5 J	µg/L
					MW9D-GW-031318	<1.5 J	µg/L
					MW19D-GW-031318	<1.5 J	µg/L
					MW5D-GW-031318	<1.5 J	µg/L
					MW14D-GW-031318	<1.5 J	µg/L

Notes:

LCS - Laboratory Control Sample

<() J - Not detected; associated reporting limit is estimated

VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MarlowWellW20-GW-031518	Sulfide	57	--	--	75-125	--	MarlowWellW20-GW-031518	<0.0050 J	mg/L
								MW1D-GW-031518	<0.0050 J	mg/L
								MW2D-GW-031518	<0.0050 J	mg/L
								MW20D-GW-031518	<0.0050 J	mg/L
								Primary School Well-GW-031518	<0.0050 J	mg/L
	Thorson-GW-031918	Sulfide	62	--	--	75-125	--	MW6S-GW-031618	<0.0050 J	mg/L
	Atwood-GW-S-031918	Sulfide	31	--	--	75-125	--	MW11S-GW-031618	<0.0050 J	mg/L
								MW10S-GW-031618	<0.0050 J	mg/L
								MW12S-GW-031618	<0.025 J	mg/L
								MW8S-GW-031618	<0.0050 J	mg/L
								MW7S-GW-031618	<0.0050 J	mg/L
								MW1S-GW-031618	<0.0050 J	mg/L
								MW9S-GW-031618	<0.025 J	mg/L
								Thorson-GW-031918	0.0070 J	mg/L
								Atwood-GW-S-031918	<0.0050 J	mg/L
								Atwood-GW-H-031918	<0.0050 J	mg/L
								Stark-GW-031918	<0.0050 J	mg/L
								Lashaw-GW-031918	<0.0050 J	mg/L
								GWFD1-031918	<0.0050 J	mg/L
								FD2-031918	<0.0050 J	mg/L
							FD3-031918	<0.0050 J	mg/L	
	MW12S-GW-031618	Chloride	65	65	0	90-110	20	MarlowWellW20-GW-031518	2.2 J	mg/L
MW1D-GW-031518								1.7 J	mg/L	
MW2D-GW-031518								1.4 J	mg/L	
MW20D-GW-031518								5.3 J	mg/L	

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW12S-GW-031618	Chloride	65	65	0	90-110	20	MW6S-GW-031618	1.2 J	mg/L
								MW11S-GW-031618	<1.2 J	mg/L
								MW10S-GW-031618	<0.77 J	mg/L
								MW12S-GW-031618	40.2 J	mg/L
								MW8S-GW-031618	2.2 J	mg/L
								MW7S-GW-031618	2.4 J	mg/L
								MW1S-GW-031618	7.3 J	mg/L
								MW9S-GW-031618	36.5 J	mg/L
								Primary School Well-GW-031518	6.7 J	mg/L
	MarlowWell2-GW-031618	4.1 J	mg/L							
	MW12S-GW-031618	Nitrate (as N)	23	24	0	90-110	20	MarlowWellW20-GW-031518	R	
	MW7S-GW-031618	Nitrate (as N)	89	89	0	90-110	20	MW1D-GW-031518	0.095 J	mg/L
	MW2D-GW-031518							0.11 J	mg/L	
	MW20D-GW-031518							1.1 J	mg/L	
	MW6S-GW-031618							0.13 J	mg/L	
	MW11S-GW-031618							0.075 J	mg/L	
	MW10S-GW-031618							0.21 J	mg/L	
	MW12S-GW-031618							7.4 J	mg/L	
	MW8S-GW-031618							22.6 J	mg/L	
MW7S-GW-031618	1.2 J							mg/L		
MW1S-GW-031618	0.062 J							mg/L		
MW9S-GW-031618	13.7 J	mg/L								
Primary School Well-GW-031518	1.2 J	mg/L								
MarlowWell2-GW-031618	1.8 J	mg/L								

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW12S-GW-031618	Sulfate	71	71	0	90-110	20	MarlowWellW20-GW-031518	<0.56 J	mg/L
								MW1D-GW-031518	3.5 J	mg/L
								MW2D-GW-031518	<0.97 J	mg/L
								MW20D-GW-031518	7.3 J	mg/L
								MW6S-GW-031618	1.9 J	mg/L
								MW11S-GW-031618	2.7 J	mg/L
								MW10S-GW-031618	1.8 J	mg/L
								MW12S-GW-031618	38.0 J	mg/L
								MW8S-GW-031618	19.1 J	mg/L
								MW7S-GW-031618	2.9 J	mg/L
	MW1S-GW-031618	19.4 J	mg/L							
	MW9S-GW-031618	68.1 J	mg/L							
	Primary School Well-GW-031518	6.6 J	mg/L							
	MarlowWell2-GW-031618	5.5 J	mg/L							
	Atwood-GW-S-031918	Nitrate (as N)	88	88	0	90-110	20	Thorson-GW-031918	<0.0079 J	mg/L
								Atwood-GW-S-031918	1.0 J	mg/L
								Atwood-GW-H-031918	0.66 J	mg/L
								Stark-GW-031918	17.9 J	mg/L
								Lashaw-GW-031918	2.4 J	mg/L
								Asher-GW-032018	7.9 J	mg/L
Silva-GW-032018								0.58 J	mg/L	
GWFD1-031918								0.66 J	mg/L	
FD2-031918								18.0 J	mg/L	
FD3-031918								2.5 J	mg/L	
FD4-032018	8.0 J	mg/L								

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March - April 2018**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	Randall-GW-041018	Chloride	83	82	1	90-110	20	Marlow-GW-041018	16.5 J	mg/L
								Randall-GW-041018	5.2 J	mg/L
		Nitrate (as N)	60	60	0	90-110	20	Marlow-GW-041018	3.9 J	mg/L
								Randall-GW-041018	2.2 J	mg/L
		Sulfate	88	87	1	90-110	20	Marlow-GW-041018	13.7 J	mg/L
								Randall-GW-041018	8.4 J	mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 8

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March - April 2018

Parameter	Sample ID	Analyte	RPD		Associated Sample IDs	Qualified Result	Units
			RPD (percent)	Control Limit (percent)			
General Chemistry	Atwood-GW-S-031918	Total dissolved solids (TDS)	12	10	Atwood-GW-S-031918	234 J	mg/L
					Asher-GW-032018	412 J	mg/L
					Silva-GW-032018	263 J	mg/L
					FD4-032018	402 J	mg/L

Notes:

- RPD - Relative Percent Difference
 J - Estimated concentration



Memorandum

July 17, 2018

To: Dave Hodson Ref. No.: 058323-1497

From:  Jeffrey Cloud/eew/449-NF Tel: 206-914-3141

CC: Lindsey Baumann, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10437471
Soil Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
June 2018**

1. Introduction

This document details a reduced validation of analytical results for June samples collected in support of the Soil Sampling at the Cenex Harvest Lease Site in Freeman, Washington during June 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly delivered on ice and stored by the laboratory at the required temperature (0-6°C).

The volatile organic compound (VOC) analysis for PH-05 used sample from a glass jar with headspace outside of 48 hours from collection. The associated sample results were qualified as estimated due to the implied low bias (see Table 4).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of bromomethane present at a low concentration. The associated sample results were not detect and were not impacted. No qualification of the data was deemed necessary.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS/LCSD contained all analytes of interest. All LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision.

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

8. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

All soil results were reported on a dry weight basis.

9. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
						Moisture	VOCs	
PH-01	PH-01	Soil	1	06/27/2018	13:15	X	X	DUP
PH-02	PH-02	Soil	1	06/27/2018	13:25	X	X	
PH-03	PH-03	Soil	1	06/27/2018	13:40	X	X	
PH-04	PH-04	Soil	1	06/27/2018	13:50	X	X	
PH-05	PH-05	Soil	1	06/27/2018	14:05	X	X	
PH-06	PH-06	Soil	1	06/27/2018	14:10	X	X	
PH-07	PH-07	Soil	1	06/27/2018	14:25	X	X	DUP
PH-08	PH-08	Soil	1	06/27/2018	14:35	X	X	DUP
Trip Blank	--	Soil	--	06/27/2018	--		X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
DUP - Laboratory Duplicate
VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

**Analytical Methods
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Table 3

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018

Location ID:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Name:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Date:	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018
Depth:	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs

Parameters	Unit	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Volatile Organic Compounds, BTEX									
1,1,1-Trichloroethane	mg/kg	<0.0087	<0.0062	<0.0067	<0.0054	<0.0056 J	<0.0060	<0.0061	<0.0064
1,1,2,2-Tetrachloroethane	mg/kg	<0.0087	<0.0062	<0.0067	<0.0054	<0.0056 J	<0.0060	<0.0061	<0.0064
1,1,2-Trichloroethane	mg/kg	<0.014	<0.0099	<0.011	<0.0085	<0.0089 J	<0.0096	<0.0096	<0.010
1,1-Dichloroethane	mg/kg	<0.032	<0.023	<0.025	<0.020	<0.021 J	<0.022	<0.022	<0.023
1,1-Dichloroethene	mg/kg	<0.015	<0.011	<0.012	<0.0094	<0.0098 J	<0.011	<0.011	<0.011
1,2,4-Trichlorobenzene	mg/kg	<0.016	<0.012	<0.012	<0.0099	<0.010 J	<0.011	<0.011	<0.012
1,2,4-Trimethylbenzene	mg/kg	<0.0043	0.012 J	0.0063 J	0.028 J	<0.0028 J	0.014 J	<0.0030	<0.0031
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.020	<0.014	<0.016	<0.012	<0.013 J	<0.014	<0.014	<0.015
1,2-Dichlorobenzene	mg/kg	<0.0042	<0.0030	<0.0032	<0.0026	<0.0027 J	<0.0029	<0.0029	<0.0031
1,2-Dichloroethane	mg/kg	<0.015	<0.011	<0.012	<0.0095	<0.010 J	<0.011	<0.011	<0.011
1,3,5-Trimethylbenzene	mg/kg	<0.0045	<0.0032	<0.0035	0.0066 J	<0.0029 J	0.0057 J	<0.0032	<0.0033
1,3-Dichlorobenzene	mg/kg	<0.0032	<0.0023	<0.0025	<0.0020	<0.0021 J	<0.0022	<0.0022	<0.0024
1,4-Dichlorobenzene	mg/kg	<0.0054	<0.0039	<0.0042	<0.0034	<0.0035 J	<0.0038	<0.0038	<0.0040
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.067	<0.048	<0.052	<0.041	<0.043 J	<0.047	<0.047	<0.049
2-Hexanone	mg/kg	<0.014	<0.010	<0.011	<0.0086	<0.0090 J	<0.0097	<0.0098	<0.010
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.021	<0.015	<0.016	<0.013	<0.014 J	<0.014	<0.015	<0.015
Acetone	mg/kg	<0.15	<0.11	<0.12	<0.095	<0.099 J	<0.11	<0.11	<0.11
Benzene	mg/kg	<0.0054	<0.0038	<0.0041	0.020 J	<0.0035 J	<0.0037	<0.0037	<0.0039
Bromodichloromethane	mg/kg	<0.0092	<0.0066	<0.0071	<0.0057	<0.0059 J	<0.0064	<0.0064	<0.0067
Bromoform	mg/kg	<0.017	<0.012	<0.013	<0.011	<0.011 J	<0.012	<0.012	<0.013
Bromomethane (Methyl bromide)	mg/kg	<0.016	<0.011	<0.012	<0.0098	<0.010 J	<0.011	<0.011	<0.012
Carbon tetrachloride	mg/kg	<0.0083	<0.0059	0.073	<0.0051	<0.0054 J	<0.0058	<0.0058	<0.0061
Chlorobenzene	mg/kg	<0.0051	<0.0036	<0.0039	<0.0031	<0.0033 J	<0.0035	<0.0035	<0.0037
Chloroethane	mg/kg	<0.040	<0.028	<0.031	<0.024	<0.026 J	<0.027	<0.028	<0.029
Chloroform (Trichloromethane)	mg/kg	<0.034	<0.024	<0.026	<0.021	<0.022 J	<0.024	<0.024	<0.025
Chloromethane (Methyl chloride)	mg/kg	<0.032	<0.023	<0.024	<0.019	<0.020 J	<0.022	<0.022	<0.023

Table 3

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018

Location ID:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Name:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Date:	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018
Depth:	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs

Parameters	Unit	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Volatile Organic Compounds, BTEX (Continued)									
cis-1,2-Dichloroethene	mg/kg	<0.014	<0.0098	<0.011	<0.0084	<0.0088 J	<0.0095	<0.0096	<0.010
cis-1,3-Dichloropropene	mg/kg	<0.016	<0.011	<0.012	<0.0097	<0.010 J	<0.011	<0.011	<0.012
Dibromochloromethane	mg/kg	<0.0072	<0.0052	<0.0056	<0.0044	<0.0047 J	<0.0050	<0.0050	<0.0053
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.031	<0.022	<0.024	<0.019	<0.020 J	<0.021	<0.021	<0.023
Ethylbenzene	mg/kg	<0.0045	<0.0032	<0.0035	0.0099 J	<0.0029 J	<0.0031	<0.0031	<0.0033
Hexachlorobutadiene	mg/kg	<0.023	<0.016	<0.018	<0.014	<0.015 J	<0.016	<0.016	<0.017
m&p-Xylenes	mg/kg	<0.011	0.011 J	<0.0088	0.059 J	0.022 J	0.010 J	<0.0080	<0.0084
Methyl tert butyl ether (MTBE)	mg/kg	<0.0044	<0.0031	<0.0034	<0.0027	<0.0028 J	<0.0030	<0.0031	<0.0032
Methylene chloride	mg/kg	<0.038	<0.027	<0.029	<0.023	<0.024 J	<0.026	<0.026	<0.028
Naphthalene	mg/kg	<0.0086	0.018 J	0.0076 J	0.028 J	<0.0056 J	<0.0060	<0.0060	<0.0063
o-Xylene	mg/kg	<0.0058	<0.0042	<0.0045	0.030 J	<0.0038 J	<0.0040	<0.0041	<0.0043
Styrene	mg/kg	<0.0050	<0.0036	<0.0039	<0.0031	<0.0032 J	<0.0035	<0.0035	<0.0037
Tetrachloroethene	mg/kg	<0.016	<0.011	<0.012	<0.0097	<0.010 J	<0.011	<0.011	<0.011
Tetrahydrofuran	mg/kg	<0.11	<0.082	<0.088	<0.070	<0.074 J	<0.079	<0.080	<0.084
Toluene	mg/kg	0.094	<0.0048	0.24	0.065	0.088 J	0.0050 J	<0.0047	<0.0049
trans-1,2-Dichloroethene	mg/kg	<0.016	<0.011	<0.012	<0.0097	<0.010 J	<0.011	<0.011	<0.012
trans-1,3-Dichloropropene	mg/kg	<0.0083	<0.0059	<0.0064	<0.0051	<0.0053 J	<0.0057	<0.0058	<0.0061
Trichloroethene	mg/kg	<0.0095	<0.0068	<0.0074	<0.0059	<0.0062 J	<0.0066	<0.0067	<0.0070
Trichlorofluoromethane (CFC-11)	mg/kg	<0.029	<0.020	<0.022	<0.018	<0.018 J	<0.020	<0.020	<0.021
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.0089	<0.0063	<0.0068	<0.0055	<0.0057 J	<0.0061	<0.0062	<0.0065
Vinyl acetate	mg/kg	<0.010	<0.0072	<0.0078	<0.0062	<0.0065 J	<0.0070	<0.0071	<0.0074
Vinyl chloride	mg/kg	<0.011	<0.0077	<0.0084	<0.0067	<0.0070 J	<0.0075	<0.0076	<0.0079

Table 3

**Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018**

Location ID:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Name:	PH-01	PH-02	PH-03	PH-04	PH-05	PH-06	PH-07	PH-08
Sample Date:	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018	06/27/2018
Depth:	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs	1 ft bgs

Parameters	Unit								
General Chemistry									
Percent moisture	%	41.9	18.3	21.0	6.4	8.1	13.3	17.7	17.3

Notes:
 < - Not detected at the associated reporting limit
 < () J - Not detected; associated reporting limit is estimated
 BTEX - Benzene, Toluene, Ethylbenzene and Xylenes
 ft bgs - Feet below ground surface
 J - Estimated concentration

Table 4
Qualified Sample Data Due to Headspace
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	PH-05	1,1,1-Trichloroethane	<0.0056 J	mg/kg
		1,1,2,2-Tetrachloroethane	<0.0056 J	mg/kg
		1,1,2-Trichloroethane	<0.0089 J	mg/kg
		1,1-Dichloroethane	<0.021 J	mg/kg
		1,1-Dichloroethene	<0.0098 J	mg/kg
		1,2,4-Trichlorobenzene	<0.010 J	mg/kg
		1,2,4-Trimethylbenzene	<0.0028 J	mg/kg
		1,2-Dibromoethane (Ethylene dibromide)	<0.013 J	mg/kg
		1,2-Dichlorobenzene	<0.0027 J	mg/kg
		1,2-Dichloroethane	<0.010 J	mg/kg
		1,3,5-Trimethylbenzene	<0.0029 J	mg/kg
		1,3-Dichlorobenzene	<0.0021 J	mg/kg
		1,4-Dichlorobenzene	<0.0035 J	mg/kg
		2-Butanone (Methyl ethyl ketone) (MEK)	<0.043 J	mg/kg
		2-Hexanone	<0.0090 J	mg/kg
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.014 J	mg/kg
		Acetone	<0.099 J	mg/kg
		Benzene	<0.0035 J	mg/kg
		Bromodichloromethane	<0.0059 J	mg/kg
		Bromoform	<0.011 J	mg/kg
		Bromomethane (Methyl bromide)	<0.010 J	mg/kg
		Carbon tetrachloride	<0.0054 J	mg/kg
		Chlorobenzene	<0.0033 J	mg/kg
		Chloroethane	<0.026 J	mg/kg
		Chloroform (Trichloromethane)	<0.022 J	mg/kg
		Chloromethane (Methyl chloride)	<0.020 J	mg/kg
		cis-1,2-Dichloroethene	<0.0088 J	mg/kg
		cis-1,3-Dichloropropene	<0.010 J	mg/kg
		Dibromochloromethane	<0.0047 J	mg/kg
		Dichlorodifluoromethane (CFC-12)	<0.020 J	mg/kg
		Ethylbenzene	<0.0029 J	mg/kg
		Hexachlorobutadiene	<0.015 J	mg/kg
		m&p-Xylenes	0.022 J	mg/kg
Methyl tert butyl ether (MTBE)	<0.0028 J	mg/kg		
Methylene chloride	<0.024 J	mg/kg		

Table 4

**Qualified Sample Data Due to Headspace
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2018**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	PH-05	Naphthalene	<0.0056 J	mg/kg
		o-Xylene	<0.0038 J	mg/kg
		Styrene	<0.0032 J	mg/kg
		Tetrachloroethene	<0.010 J	mg/kg
		Tetrahydrofuran	<0.074 J	mg/kg
		Toluene	0.088 J	mg/kg
		trans-1,2-Dichloroethene	<0.010 J	mg/kg
		trans-1,3-Dichloropropene	<0.0053 J	mg/kg
		Trichloroethene	<0.0062 J	mg/kg
		Trichlorofluoromethane (CFC-11)	<0.018 J	mg/kg
		Trifluorotrchloroethane (CFC-113)	<0.0057 J	mg/kg
		Vinyl acetate	<0.0065 J	mg/kg
		Vinyl chloride	<0.0070 J	mg/kg

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

January 14, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/124-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10458888
Soil Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018**

1. Introduction

This document details a reduced validation of analytical results for soil samples collected in support of the Soil Sampling at the Cenex Harvest Lease Site in Freeman, Washington during December 2018. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010



These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of two high recoveries and a high RPD. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 100 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is two times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.



9. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

10. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

Sample Collection and Analysis Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>		Comments
						VOCs	Moisture	
SB201-S-5'	SB-201	Water	5	12/13/2018	12:30	X	X	
SB201-S-15'	SB-201	Water	15	12/13/2018	12:45	X	X	DUP - MS/MSD
SB202-S-5'	SB-202	Water	5	12/13/2018	11:45	X	X	
SB202-S-15'	SB-202	Water	15	12/13/2018	12:00	X	X	
SB203-S-5'	SB-203	Water	5	12/13/2018	11:00	X	X	
SB203-S-15'	SB-203	Water	15	12/13/2018	11:15	X	X	
SB204-S-5'	SB-204	Water	5	12/13/2018	10:30	X	X	
SB204-S-15'	SB-204	Water	15	12/13/2018	10:45	X	X	
SB-S-FD	SB-204	Water	15	12/13/2018	--	X	X	FD (SB204-S-15')
SB205-S-5'	SB-205	Water	5	12/13/2018	09:45	X	X	
SB205-S-15'	SB-205	Water	15	12/13/2018	10:00	X	X	
Trip Blank	--	Water	--	12/13/2018	--	X		Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- "--" - Not Applicable

Table 2

**Analytical Methods
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- ⁽¹⁾ - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, 1986, with subsequent revisions
- ⁽²⁾ - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

Location ID:	SB-201	SB-201	SB-202	SB-202	SB-203	SB-203
Sample Name:	SB201-S-5'	SB201-S-15'	SB202-S-5'	SB202-S-15'	SB203-S-5'	SB203-S-15'
Sample Date:	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
Depth:	5 ft bgs	15 ft bgs	5 ft bgs	15 ft bgs	5 ft bgs	15 ft bgs

Parameters	Unit						
Volatile Organic Compounds							
1,1,1-Trichloroethane	mg/kg	<0.029	<0.034	<0.028	<0.036	<0.029	<0.038
1,1,1,2-Tetrachloroethane	mg/kg	<0.011	<0.013	<0.010	<0.014	<0.011	<0.014
1,1,2-Trichloroethane	mg/kg	<0.0075	<0.0087	<0.0071	<0.0094	<0.0074	<0.0097
1,1-Dichloroethane	mg/kg	<0.0071	<0.0082	<0.0067	<0.0088	<0.0069	<0.0091
1,1-Dichloroethene	mg/kg	<0.019	<0.022	<0.018	<0.023	<0.019	<0.024
1,2,4-Trichlorobenzene	mg/kg	<0.014	<0.016	<0.013	<0.017	<0.014	<0.018
1,2,4-Trimethylbenzene	mg/kg	<0.013	<0.015	<0.012	<0.016	<0.012	<0.016
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0066	<0.0077	<0.0063	<0.0082	<0.0065	<0.0086
1,2-Dichlorobenzene	mg/kg	<0.0025	<0.0029	<0.0024	<0.0032	<0.0025	<0.0033
1,2-Dichloroethane	mg/kg	<0.0069	<0.0080	<0.0065	<0.0086	<0.0068	<0.0089
1,3,5-Trimethylbenzene	mg/kg	<0.010	<0.012	<0.0095	<0.012	<0.0098	<0.013
1,3-Dichlorobenzene	mg/kg	<0.0023	<0.0027	<0.0022	<0.0029	<0.0022	<0.0030
1,4-Dichlorobenzene	mg/kg	<0.0039	<0.0045	<0.0037	<0.0049	<0.0038	<0.0050
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.033	<0.039	<0.032	<0.042	<0.033	<0.043
2-Hexanone	mg/kg	<0.014	<0.017	<0.014	<0.018	<0.014	<0.019
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.013	<0.015	<0.012	<0.016	<0.013	<0.017
Acetone	mg/kg	<0.39	0.99 J	<0.37	0.84 J	<0.38	<0.51
Benzene	mg/kg	<0.0035	<0.0041	<0.0034	<0.0044	<0.0035	<0.0046
Bromodichloromethane	mg/kg	<0.022	<0.025	<0.020	<0.027	<0.021	<0.028
Bromoform	mg/kg	<0.095	<0.11	<0.090	<0.12	<0.093	<0.12
Bromomethane (Methyl bromide)	mg/kg	<0.074	<0.085	<0.070	<0.092	<0.072	<0.095
Carbon tetrachloride	mg/kg	<0.030	<0.035	<0.028	<0.037	<0.030	<0.039
Chlorobenzene	mg/kg	<0.0035	<0.0041	<0.0034	<0.0044	<0.0035	<0.0046
Chloroethane	mg/kg	<0.033	<0.038	<0.031	<0.041	<0.032	<0.042
Chloroform (Trichloromethane)	mg/kg	<0.031	<0.036	<0.030	<0.039	<0.031	<0.041
Chloromethane (Methyl chloride)	mg/kg	<0.015	<0.018	<0.014	<0.019	<0.015	<0.020
cis-1,2-Dichloroethene	mg/kg	<0.010	<0.012	<0.0099	<0.013	<0.010	<0.013
cis-1,3-Dichloropropene	mg/kg	<0.0090	<0.010	<0.0085	<0.011	<0.0088	<0.012
Dibromochloromethane	mg/kg	<0.0073	<0.0085	<0.0069	<0.0091	<0.0072	<0.0094

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

Location ID:	SB-201	SB-201	SB-202	SB-202	SB-203	SB-203
Sample Name:	SB201-S-5'	SB201-S-15'	SB202-S-5'	SB202-S-15'	SB203-S-5'	SB203-S-15'
Sample Date:	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
Depth:	5 ft bgs	15 ft bgs	5 ft bgs	15 ft bgs	5 ft bgs	15 ft bgs

Parameters	Unit						
Volatile Organic Compounds (Continued)							
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.020	<0.024	<0.019	<0.025	<0.020	<0.026
Ethylbenzene	mg/kg	<0.0034	<0.0040	<0.0032	<0.0043	<0.0034	<0.0044
Hexachlorobutadiene	mg/kg	<0.015	<0.018	<0.015	<0.019	<0.015	<0.020
m&p-Xylenes	mg/kg	<0.0078	<0.0090	<0.014 J	<0.0097	<0.0076	<0.010
Methyl tert butyl ether (MTBE)	mg/kg	<0.0075	<0.0087	<0.0071	<0.0093	<0.0073	<0.0097
Methylene chloride	mg/kg	<0.12	<0.14	<0.11	<0.15	<0.12	<0.15
Naphthalene	mg/kg	<0.059	<0.068	<0.056	<0.073	<0.058	<0.076
o-Xylene	mg/kg	<0.015	<0.017	<0.014	<0.018	<0.014	<0.019
Styrene	mg/kg	<0.0029	<0.0033	<0.0027	<0.0036	<0.0028	<0.0037
Tetrachloroethene	mg/kg	<0.022	<0.026	<0.021	<0.028	<0.022	<0.029
Tetrahydrofuran	mg/kg	<0.091	<0.11	<0.086	<0.11	<0.090	<0.12
Toluene	mg/kg	<0.015	<0.018	0.016 J	<0.019	<0.015	<0.020
trans-1,2-Dichloroethene	mg/kg	<0.029	<0.034	<0.028	<0.037	<0.029	<0.038
trans-1,3-Dichloropropene	mg/kg	<0.0087	<0.010	<0.0083	<0.011	<0.0086	<0.011
Trichloroethene	mg/kg	<0.0097	<0.011	<0.0092	<0.012	<0.0095	<0.013
Trichlorofluoromethane (CFC-11)	mg/kg	<0.11	<0.13	<0.10	<0.14	<0.11	<0.14
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.073	<0.085	<0.069	<0.091	<0.072	<0.094
Vinyl acetate	mg/kg	<0.0073	<0.0085	<0.0069	<0.0091	<0.0071	<0.0094
Vinyl chloride	mg/kg	<0.012	<0.014	<0.012	<0.015	<0.012	<0.016
General Chemistry							
Percent moisture	%	5.6	29.2	10.3	33.3	9.6	36.4

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

	Location ID:	SB-204	SB-204	SB-204	SB-205	SB-205
	Sample Name:	SB204-S-5'	SB204-S-15'	SB-S-FD	SB205-S-5'	SB205-S-15'
	Sample Date:	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
	Depth:	5 ft bgs	15 ft bgs	15 ft bgs Duplicate	5 ft bgs	15 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1-Trichloroethane	mg/kg	<0.030	<0.040	<0.040	<0.029	<0.035
1,1,2,2-Tetrachloroethane	mg/kg	<0.011	<0.015	<0.015	<0.011	<0.013
1,1,2-Trichloroethane	mg/kg	<0.0077	<0.010	<0.010	<0.0073	<0.0090
1,1-Dichloroethane	mg/kg	<0.0073	<0.0097	<0.0095	<0.0069	<0.0085
1,1-Dichloroethene	mg/kg	<0.019	<0.026	<0.025	<0.018	<0.023
1,2,4-Trichlorobenzene	mg/kg	<0.014	<0.019	<0.019	<0.014	<0.017
1,2,4-Trimethylbenzene	mg/kg	<0.013	<0.017	<0.017	<0.012	<0.015
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0068	<0.0091	<0.0089	<0.0064	<0.0080
1,2-Dichlorobenzene	mg/kg	<0.0026	<0.0035	<0.0034	<0.0025	<0.0031
1,2-Dichloroethane	mg/kg	<0.0071	<0.0095	<0.0093	<0.0067	<0.0083
1,3,5-Trimethylbenzene	mg/kg	<0.010	<0.014	<0.014	<0.0098	<0.012
1,3-Dichlorobenzene	mg/kg	<0.0024	<0.0032	<0.0031	<0.0022	<0.0028
1,4-Dichlorobenzene	mg/kg	<0.0040	<0.0054	<0.0053	<0.0038	<0.0047
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.034	<0.046	<0.045	<0.033	<0.040
2-Hexanone	mg/kg	<0.015	<0.020	<0.020	<0.014	<0.017
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.013	<0.018	<0.018	<0.013	<0.016
Acetone	mg/kg	<0.40	0.91 J	<0.53	<0.38	<0.47
Benzene	mg/kg	<0.0036	<0.0049	<0.0048	<0.0035	<0.0043
Bromodichloromethane	mg/kg	<0.022	<0.030	<0.029	<0.021	<0.026
Bromoform	mg/kg	<0.098	<0.13	<0.13	<0.093	<0.11
Bromomethane (Methyl bromide)	mg/kg	<0.076	<0.10	<0.099	<0.072	<0.089
Carbon tetrachloride	mg/kg	<0.031	<0.041	<0.041	<0.029	<0.036
Chlorobenzene	mg/kg	<0.0036	<0.0049	<0.0048	<0.0035	<0.0043
Chloroethane	mg/kg	<0.034	<0.045	<0.044	<0.032	<0.039
Chloroform (Trichloromethane)	mg/kg	<0.032	<0.043	<0.042	<0.031	<0.038
Chloromethane (Methyl chloride)	mg/kg	<0.016	<0.021	<0.020	<0.015	<0.018
cis-1,2-Dichloroethene	mg/kg	<0.011	<0.014	<0.014	<0.010	<0.013
cis-1,3-Dichloropropene	mg/kg	<0.0093	<0.012	<0.012	<0.0088	<0.011
Dibromochloromethane	mg/kg	<0.0075	<0.010	<0.0098	<0.0071	<0.0088

Analytical Results Summary
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

Location ID:	SB-204	SB-204	SB-204	SB-205	SB-205	
Sample Name:	SB204-S-5'	SB204-S-15'	SB-S-FD	SB205-S-5'	SB205-S-15'	
Sample Date:	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	
Depth:	5 ft bgs	15 ft bgs	15 ft bgs Duplicate	5 ft bgs	15 ft bgs	
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.021	<0.028	<0.028	<0.020	<0.025
Ethylbenzene	mg/kg	<0.0035	<0.0047	<0.0046	<0.0033	<0.0041
Hexachlorobutadiene	mg/kg	<0.016	<0.021	<0.021	<0.015	<0.018
m&p-Xylenes	mg/kg	<0.0080	<0.011	<0.011	<0.0076	<0.0094
Methyl tert butyl ether (MTBE)	mg/kg	<0.0077	<0.010	<0.010	<0.0073	<0.0090
Methylene chloride	mg/kg	<0.12	<0.16	<0.16	<0.12	<0.14
Naphthalene	mg/kg	<0.061	<0.081	<0.079	<0.057	<0.071
o-Xylene	mg/kg	<0.015	<0.020	<0.020	<0.014	<0.018
Styrene	mg/kg	<0.0029	<0.0039	<0.0039	<0.0028	<0.0035
Tetrachloroethene	mg/kg	<0.023	<0.030	<0.030	<0.022	<0.027
Tetrahydrofuran	mg/kg	<0.094	<0.13	<0.12	<0.089	<0.11
Toluene	mg/kg	<0.016	<0.021	<0.021	<0.015	<0.018
trans-1,2-Dichloroethene	mg/kg	<0.030	<0.041	<0.040	<0.029	<0.035
trans-1,3-Dichloropropene	mg/kg	<0.0090	<0.012	<0.012	<0.0085	<0.011
Trichloroethene	mg/kg	<0.010	<0.013	<0.013	<0.0094	<0.012
Trichlorofluoromethane (CFC-11)	mg/kg	<0.11	<0.15	<0.15	<0.11	<0.13
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.075	<0.10	<0.098	<0.071	<0.088
Vinyl acetate	mg/kg	<0.0075	<0.010	<0.0098	<0.0071	<0.0088
Vinyl chloride	mg/kg	<0.013	<0.017	<0.017	<0.012	<0.015
General Chemistry						
Percent moisture	%	22.8	35.1	34.7	18.7	31.7

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Soil Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	m&p-Xylenes	12/19/2018	0.0088 J	SB202-S-5'	0.014 J	<0.014 J	mg/kg

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

February 1, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/154-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10459654, 10459661, 10460868 and 10461015
Rock Coring Investigation
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Investigation at the Cenex Harvest Lease Site in Freeman, Washington during December 2018 and January 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with two exceptions. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results were either non-detect or significantly greater than the blanks and were not impacted. No qualification of the data was deemed necessary.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where a high recovery was found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 5).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 6).

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of three trip blank samples.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, three trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of methylene chloride present at a low concentration. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 7).



9. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

10. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments				
							Anions	COD	Alkalinity	TDS	Sulfide	TOC	Total Metals	Dissolved Metals	Mercury	VOCs					
RC-02-GW-A-100-101.5	RC-02	Water	100	101.5	12/19/2018	11:40	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD		
RC-02-GW-B-100-101.5	RC-02	Water	100	101.5	12/19/2018	14:30	X	X	X	X	X	X	X	X	X	X	X	X			
RC-03-GW-A-60-62	RC-03	Water	60	62	12/20/2018	09:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD		
RC-03-GW-A-72-73	RC-03	Water	72	73	12/20/2018	10:50	X	X	X	X	X	X	X	X	X	X	X	X	DUP		
RC-03-GW-B-72-73	RC-03	Water	72	73	12/20/2018	14:50	X	X	X	X	X	X	X	X	X	X	X	X			
RC04-GW-010819	RC-04	Water	79	--	01/08/2019	10:30	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD		
RC04-R-GW-010919	RC-04	Water	79	--	01/09/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD		
Trip Blank-3-12192018	--	Water	--	--	12/19/2018	--													X	Trip Blank	
Trip Blank	--	Water	--	--	12/20/2018	--														X	Trip Blank
TB-010819	--	Water	--	--	01/08/2019	--														X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Compounds
- - Not Applicable

Table 2
Analytical Methods
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Dissolved Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽²⁾	Water
Anions	EPA 300.0 ⁽³⁾ EPA 353.2 ⁽³⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽²⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽³⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽²⁾	Water
Sulfide	SM 4500 S2 D ⁽²⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 3

**Analytical Results Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Location ID:	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Sample Name:	RC-02-GW-A-100-101.5	RC-02-GW-B-100-101.5	RC-03-GW-A-60-62	RC-03-GW-A-72-73	RC-03-GW-B-72-73	RC04-GW-010819	RC04-R-GW-010919
Sample Date:	12/19/2018	12/19/2018	12/20/2018	12/20/2018	12/20/2018	01/08/2019	01/09/2019
Depth:	100-101.5 ft bgs	100-101.5 ft bgs	60-62 ft bgs	72-73 ft bgs	72-73 ft bgs	79 ft bgs	79 ft bgs

Parameters	Unit	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	0.25 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19 J	<0.19 J	<0.19 J	<0.19 J	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	2.5 J	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15

Table 3

**Analytical Results Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Location ID:	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Sample Name:	RC-02-GW-A-100-101.5	RC-02-GW-B-100-101.5	RC-03-GW-A-60-62	RC-03-GW-A-72-73	RC-03-GW-B-72-73	RC04-GW-010819	RC04-R-GW-010919
Sample Date:	12/19/2018	12/19/2018	12/20/2018	12/20/2018	12/20/2018	01/08/2019	01/09/2019
Depth:	100-101.5 ft bgs	100-101.5 ft bgs	60-62 ft bgs	72-73 ft bgs	72-73 ft bgs	79 ft bgs	79 ft bgs

Parameters	Unit							
Volatile Organic Compounds (Continued)								
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	17.0 J	25.7
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	0.12 J	<0.10	<0.10	<0.10	<0.10	0.13 J	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078 J	0.25 J	<0.078 J	<0.078 J	<0.078 J	<0.078 J	<0.078
Carbon tetrachloride	µg/L	190	293	184	202	193	0.38 J	0.43 J
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	15.5	17.5	14.6	13.2	11.6	1.8	1.3
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	0.39 J	0.34 J	<0.14	<0.14	<0.14	1.4	0.81
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	0.43 J	0.43 J	<0.18	<0.18	<0.18	<0.18	<0.18

Table 3

**Analytical Results Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Location ID:	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Sample Name:	RC-02-GW-A-100-101.5	RC-02-GW-B-100-101.5	RC-03-GW-A-60-62	RC-03-GW-A-72-73	RC-03-GW-B-72-73	RC04-GW-010819	RC04-R-GW-010919
Sample Date:	12/19/2018	12/19/2018	12/20/2018	12/20/2018	12/20/2018	01/08/2019	01/09/2019
Depth:	100-101.5 ft bgs	100-101.5 ft bgs	60-62 ft bgs	72-73 ft bgs	72-73 ft bgs	79 ft bgs	79 ft bgs

Parameters	Unit						
Volatile Organic Compounds (Continued)							
m&p-Xylenes	µg/L	1.2	1.1	<0.31	0.57 J	<0.31	2.2
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	0.41 J	0.37 J	<0.16	<0.16	<0.16	2.5
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	2.6 J
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18 J	<0.18 J	<0.18 J	<0.18 J	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	1.5	1.2	<0.083	<0.083	<0.083	6.8
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	1.2 J	1.1 J	<0.31	<0.31	<0.31	4.7
Metals							
Aluminum (dissolved)	µg/L	17.8 J	<15.5	<15.5	<15.5	<15.5	2160
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0

Table 3

**Analytical Results Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Location ID:	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Sample Name:	RC-02-GW-A-100-101.5	RC-02-GW-B-100-101.5	RC-03-GW-A-60-62	RC-03-GW-A-72-73	RC-03-GW-B-72-73	RC04-GW-010819	RC04-R-GW-010919
Sample Date:	12/19/2018	12/19/2018	12/20/2018	12/20/2018	12/20/2018	01/08/2019	01/09/2019
Depth:	100-101.5 ft bgs	100-101.5 ft bgs	60-62 ft bgs	72-73 ft bgs	72-73 ft bgs	79 ft bgs	79 ft bgs

Parameters	Unit							
Metals (Continued)								
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	14.7	13.6	23.0	23.0	24.6	10.1	24.6
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium	µg/L	38100	41100	50300	51400	50400	12900	53700
Calcium (dissolved)	µg/L	37300	40700	49500	49000	49800	8750	13200
Chromium (dissolved)	µg/L	<0.49	<0.49	0.67 J	0.62 J	<0.49	1.2 J	2.2 J
Cobalt (dissolved)	µg/L	1.0 J	<0.50	1.5 J	1.1 J	0.55 J	<0.50	1.3 J
Copper (dissolved)	µg/L	4.0 J	3.3 J	2.1 J	2.1 J	1.2 J	<1.2	1.4 J
Iron (dissolved)	µg/L	692	77.9	46.8 J	81.7	98.9	944	3610
Lead (dissolved)	µg/L	<2.0	2.1 J	<2.0	2.4 J	2.0 J	<2.0	<2.0
Magnesium	µg/L	12100	12700	15100	15400	15000	7180	24000
Magnesium (dissolved)	µg/L	11900	12700	15000	14800	14900	5890	8730
Manganese (dissolved)	µg/L	135	51.0	53.6	40.2	13.0	22.8	62.7
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	0.22	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	2.9 J	2.8 J	<1.1	1.4 J	2.0 J
Potassium	µg/L	1610 J	1660 J	1570 J	1570 J	1500 J	3200	6650
Potassium (dissolved)	µg/L	1460 J	1530 J	1440 J	1420 J	1400 J	2850	3000
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium	µg/L	13300	12200	12700	13000	13100	18200	34400
Sodium (dissolved)	µg/L	13000	12100	12300	12200	12900	16700	18800
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	4.2 J	6.2 J	6.0 J	6.4 J	8.5 J	0.77 J	3.9 J
Zinc (dissolved)	µg/L	26.1	14.3 J	13.3 J	12.4 J	86.6	4.5 J	6.1 J

Table 3

**Analytical Results Summary
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Location ID:	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Sample Name:	RC-02-GW-A-100-101.5	RC-02-GW-B-100-101.5	RC-03-GW-A-60-62	RC-03-GW-A-72-73	RC-03-GW-B-72-73	RC04-GW-010819	RC04-R-GW-010919
Sample Date:	12/19/2018	12/19/2018	12/20/2018	12/20/2018	12/20/2018	01/08/2019	01/09/2019
Depth:	100-101.5 ft bgs	100-101.5 ft bgs	60-62 ft bgs	72-73 ft bgs	72-73 ft bgs	79 ft bgs	79 ft bgs

Parameters**Unit****General Chemistry**

Parameters	Unit	RC-02	RC-02	RC-03	RC-03	RC-03	RC-04	RC-04
Alkalinity, total (as CaCO ₃)	mg/L	160	159	179	183	183	69.2	105
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	19.1 J	51.8	953
Chloride	mg/L	6.1 J	6.5 J	12.3 J	12.5 J	12.7 J	6.0	5.7
Nitrate (as N)	mg/L	2.2 J	3.1 J	3.9 J	4.1 J	4.0 J	<0.015	<0.015
Nitrite/Nitrate	mg/L	1.8	2.5	3.3	3.4	3.3	<0.018	0.043 J
Sulfate	mg/L	10.4 J	11.2 J	14.7 J	14.9 J	15.0 J	10.5 J	8.5 J
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	0.045	<0.14
Total dissolved solids (TDS)	mg/L	223	243	277	274	283	111	200
Total organic carbon (TOC)	mg/L	1.1	1.0	1.2	0.99 J	1.4	2.8	2.6

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	RC-02-GW-A-100-101.5	48 hours	>48 hours	Nitrate (as N)	2.2 J	mg/L
	RC-02-GW-B-100-101.5	48 hours	>48 hours	Nitrate (as N)	3.1 J	mg/L

Notes:

J - Estimated concentration

Table 5

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	Control Limits	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	2,2,4-Trimethylpentane	12/24/2018	63	64-130	RC-03-GW-A-60-62	<0.19 J	µg/L
					RC-03-GW-A-72-73	<0.19 J	µg/L
					RC-03-GW-B-72-73	<0.19 J	µg/L
					RC-02-GW-A-100-101.5	<0.19 J	µg/L
					RC-02-GW-B-100-101.5	<0.19 J	µg/L
	Carbon disulfide	12/24/2018	57	57-125	RC-03-GW-A-60-62	<0.078 J	µg/L
					RC-03-GW-A-72-73	<0.078 J	µg/L
					RC-03-GW-B-72-73	<0.078 J	µg/L
					RC-02-GW-A-100-101.5	<0.078 J	µg/L
					RC-02-GW-B-100-101.5	0.25 J	µg/L
		1/21/2019	44	47-137	RC04-GW-010819	<0.078 J	µg/L
tert-Butyl ethyl ether	12/24/2018	74	75-125	RC-03-GW-A-60-62	<0.18 J	µg/L	
				RC-03-GW-A-72-73	<0.18 J	µg/L	
				RC-03-GW-B-72-73	<0.18 J	µg/L	
				RC-02-GW-A-100-101.5	<0.18 J	µg/L	
				RC-02-GW-B-100-101.5	<0.18 J	µg/L	

Notes:

LCS - Laboratory Control Sample

J - Estimated concentration

<() J - Not detected; associated reporting limit is estimated

VOCs - Volatile Organic Compounds

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	RC-03-GW-A-60-62	Nitrate (as N)	32	30	1	90-110	20	RC-03-GW-A-60-62	3.9 J	mg/L
								RC-03-GW-A-72-73	4.1 J	mg/L
								RC-03-GW-B-72-73	4.0 J	mg/L
								RC-02-GW-A-100-101.5	2.2 J	mg/L
								RC-02-GW-B-100-101.5	3.1 J	mg/L
	RC-03-GW-A-60-62	Chloride	81	81	0	90-110	20	RC-03-GW-A-60-62	12.3 J	mg/L
								RC-03-GW-A-72-73	12.5 J	mg/L
								RC-03-GW-B-72-73	12.7 J	mg/L
								RC-02-GW-A-100-101.5	6.1 J	mg/L
								RC-02-GW-B-100-101.5	6.5 J	mg/L
	RC-03-GW-A-60-62	Sulfate	82	83	0	90-110	20	RC-03-GW-A-60-62	14.7 J	mg/L
								RC-03-GW-A-72-73	14.9 J	mg/L
								RC-03-GW-B-72-73	15.0 J	mg/L
								RC-02-GW-A-100-101.5	10.4 J	mg/L
								RC-02-GW-B-100-101.5	11.2 J	mg/L
RC04-GW-010819	Sulfate	87	86	0	90-110	20	RC04-GW-010819	10.5 J	mg/L	
							RC04-R-GW-010919	8.5 J	mg/L	

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration

Table 7

**Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Rock Coring Investigation
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	01/08/2019	Methylene chloride	1.3 J	RC04-GW-010819	1.1 J	<1.3 J	µg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

February 8, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: ^{CK} Jeffrey Cloud/mkd/157-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus,
Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10459153, 10459303, 10459465, 10459469, 10459737, 10460706, 10460710, 10460712, 10460715, 10460716, 10460718, 10460719, 10460720, 10460721, 10460721, 10461124, 10461384, 10461555 and 10461561
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during December 2018 and January 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i. "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

The volatile organic compound (VOC) analysis was performed on containers with significant headspace (>6mm) for a few samples. The associated sample results were qualified as estimated due to the implied low bias (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 6).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix



effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 7).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high RPDs. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where high recoveries were found the associated non-detect result was not impacted and the associated sample detections were qualified as estimated due to the implied high bias. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias. A summary of the qualifications is presented in Table 8.



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where extremely low recoveries were found the associated sample detections were qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated (see Table 8).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of eleven trip blank samples and five field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, eleven trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of two analytes present at low concentrations. The associated sample result with a concentration similar to the blanks was qualified as non-detect due to contamination as evidenced by the blanks (see Table 9).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with the exception of two high RPDs. The associated sample results and their duplicates were qualified as estimated due to variability (see Table 10).



10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Asher-GW-010719	Asher Well	Water	01/07/2019	12:45	X	X	X	X	X	X	X	X	X	X	X	
AtwoodH-GW-010419	Atwood House	Water	01/04/2019	11:15	X	X	X	X	X	X	X	X	X	X	X	
AtwoodS-GW-010419	Atwood Shop	Water	01/04/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	
Lang-GW-011519	Lang Well	Water	01/15/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	
Marlow-GW-010719	Marlow Well	Water	01/07/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	
No2-GW-011019	Out-of-Use Marlow Well (No. 2)	Water	01/10/2019	15:45	X	X	X	X	X	X	X	X	X	X	X	
MW1D-GW-122118	MW-1D	Water	12/21/2018	10:45	X	X	X	X	X	X	X	X	X	X	X	
MW1S-GW-122018	MW-1S	Water	12/20/2018	15:10	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW2D-GW-122118	MW-2D	Water	12/21/2018	11:30	X	X	X	X	X	X	X	X	X	X	X	
FD5-GW-122118	MW-2D	Water	12/21/2018	11:35	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (MW2D-GW-122118)
MW3D-GW-121818	MW-3D	Water	12/18/2018	12:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD1-GW-121818	MW-3D	Water	12/18/2018	12:05	X	X	X	X	X	X	X	X	X	X	X	FD (MW3D-GW-121818)
MW4D-GW-011519	MW-4D	Water	01/15/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW5D-GW-121818	MW-5D	Water	12/18/2018	09:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6D-GW-121718	MW-6D	Water	12/17/2018	15:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6s-GW-122018	MW-6S	Water	12/20/2018	13:00	X	X	X	X	X	X	X	X	X	X	X	DUP
MW6U-GW-121718	MW-6U	Water	12/17/2018	14:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW7S-GW-122018	MW-7S	Water	12/20/2018	15:40	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW8S-GW-122018	MW-8S	Water	12/20/2018	16:20	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW9D-GW-121818	MW-9D	Water	12/18/2018	13:00	X	X	X	X	X	X	X	X	X	X	X	
FD2-GW-121818	MW-9D	Water	12/18/2018	13:05	X	X	X	X	X	X	X	X	X	X	X	FD (MW9D-GW-121818)
MW9s-GW-122118	MW-9S	Water	12/21/2018	09:30	X	X	X	X	X	X	X	X	X	X	X	
FD4-GW-122118	MW-9S	Water	12/21/2018	09:35	X	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (MW9s-GW-122118)
MW9U-GW-121818	MW-9U	Water	12/18/2018	14:00	X	X	X	X	X	X	X	X	X	X	X	DUP
FD3-GW-121818	MW-9U	Water	12/18/2018	14:05	X	X	X	X	X	X	X	X	X	X	X	FD (MW9U-GW-121818)
MW10s-GW-122018	MW-10S	Water	12/20/2018	14:20	X	X	X	X	X	X	X	X	X	X	X	
MW11s-GW-122018	MW-11S	Water	12/20/2018	13:30	X	X	X	X	X	X	X	X	X	X	X	
MW12s-GW-122018	MW-12S	Water	12/20/2018	14:40	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW13s-GW-011019	MW-13S	Water	01/10/2019	11:15	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW14D-GW-011419	MW-14D	Water	01/14/2019	12:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW15D-GW-121718	MW-15D	Water	12/17/2018	13:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW16D-GW-121718	MW-16D	Water	12/17/2018	11:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW17D-GW-121818	MW-17D	Water	12/18/2018	11:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW18D-GW-121718	MW-18D	Water	12/17/2018	12:00	X	X	X	X	X	X	X	X	X	X	X	
MW19D-GW-011419	MW-19D	Water	01/14/2019	13:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW20D-GW-011519	MW-20D	Water	01/15/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW21D-GW-121718	MW-21D	Water	12/17/2018	10:00	X	X	X	X	X	X	X	X	X	X	X	
MW24s-GW-122118	MW-24S	Water	12/21/2018	08:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW25s-GW-122118	MW-25S	Water	12/21/2018	09:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Randall-GW-010719	Randall Well	Water	01/07/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	
Reed-GW-010719	Reed Well (W30)	Water	01/07/2019	15:15	X	X	X	X	X	X	X	X	X	X	X	DUP
Silva-GW-010419	Silva Well	Water	01/04/2019	09:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Stark-GW-010419	Stark Well (W15)	Water	01/04/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
SG1-GW-011519	Stream Gauge 1	Water	01/15/2019	12:30											X	
SG2-GW-011519	Stream Gauge 2	Water	01/15/2019	12:35											X	
Thorson-GW-010719	Thorson Well	Water	01/07/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
W20-GW-011019	Out-of-Use Marlow Well (W20)	Water	01/10/2019	12:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
W26-GW-011019	Out-of-Use Freeman School Well (W26)	Water	01/10/2019	14:45	X	X	X	X	X	X	X	X	X	X	X	
Freeman Primary-GW-121918	WS-5	Water	12/19/2018	12:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Trip Blank 121718	--	Water	12/17/2018	--											X	Trip Blank
TB1-121818	--	Water	12/18/2018	--											X	Trip Blank
TB2-121818	--	Water	12/18/2018	--											X	Trip Blank
TB1-122018	--	Water	12/20/2018	--											X	Trip Blank
TB2-122018	--	Water	12/20/2018	--											X	Trip Blank
TB-122118	--	Water	12/21/2018	--											X	Trip Blank
TB-010419	--	Water	01/04/2019	--											X	Trip Blank
TB-010719	--	Water	01/07/2019	--											X	Trip Blank
TB-011019	--	Water	01/10/2019	--											X	Trip Blank
TB-011419	--	Water	01/14/2019	--											X	Trip Blank
TB-011519	--	Water	01/15/2019	--											X	Trip Blank

Notes:

DUP - Laboratory Duplicate
FD - Field Duplicate sample of sample in parenthesis
MS - Matrix Spike
MS/MSD - Matrix Spike/Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
COD - Chemical Oxygen Demand
TDS - Total Dissolved Solids
TOC - Total Organic Carbon
-- - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
(2) EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
(3) SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
(4) EPA - DW - "Methods for the Determination of Organic Compounds in Drinking Water", EPA/600R-95/131, August 1995 and subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Marlow Well	Out-of-Use Marlow Well (No. 2)
Sample Name:	Asher-GW-010719	AtwoodH-GW-010419	AtwoodS-GW-010419	Lang-GW-011519	Marlow-GW-010719	No2-GW-011019
Sample Date:	01/07/2019	01/04/2019	01/04/2019	01/15/2019	01/07/2019	01/10/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20 J	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14 J	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18 J	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20 J	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21 J	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26 J	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20 J	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20 J	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7 J	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24 J	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14 J	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22 J	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27 J	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12 J	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070 J	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3 J	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19 J	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99 J	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88 J	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15 J	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13 J	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42 J	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2 J	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2 J	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91 J	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10 J	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21 J	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22 J	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80 J	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8 J	<1.8	<1.8
Carbon disulfide	µg/L	<0.078 J	<0.078	<0.078 J	<0.078	0.52 J

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Marlow Well	Out-of-Use Marlow Well (No. 2)
Sample Name:	Asher-GW-010719	AtwoodH-GW-010419	AtwoodS-GW-010419	Lang-GW-011519	Marlow-GW-010719	No2-GW-011019
Sample Date:	01/07/2019	01/04/2019	01/04/2019	01/15/2019	01/07/2019	01/10/2019

Parameters	Unit						
Volatile Organic Compounds (Continued)							
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19 J	<0.19	123	69.1
Chlorobenzene	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27 J	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49 J	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45 J	<0.45	8.4	3.8
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15 J	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20 J	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15 J	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12 J	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23 J	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14 J	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13 J	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14 J	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31 J	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18 J	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31 J	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98 J	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24 J	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10 J	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48 J	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16 J	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19 J	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11 J	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2 J	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18 J	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15 J	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17 J	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2 J	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083 J	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12 J	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18 J	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0 J	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15 J	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23 J	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22 J	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1 J	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	Asher Well Asher-GW-010719 01/07/2019	Atwood House AtwoodH-GW-010419 01/04/2019	Atwood Shop AtwoodS-GW-010419 01/04/2019	Lang Well Lang-GW-011519 01/15/2019	Marlow Well Marlow-GW-010719 01/07/2019	Out-of-Use Marlow Well (No. 2) No2-GW-011019 01/10/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Vinyl chloride	µg/L	<0.092	<0.092	<0.092 J	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31 J	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	539
Metals						
Aluminum (dissolved)	µg/L	<15.5	<15.5	86.8 J	<15.5	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	77.1	40.0	28.5	32.9	23.8
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	0.57 J	0.69 J	0.41 J	<0.26	0.58 J
Calcium (dissolved)	µg/L	61900	28700	34100	46600	49400
Chromium (dissolved)	µg/L	0.89 J	0.50 J	0.55 J	<0.49	<0.49
Cobalt (dissolved)	µg/L	1.4 J	0.89 J	1.7 J	<0.50	0.85 J
Copper (dissolved)	µg/L	60.9	19.2	119	7.4 J	34.8
Iron (dissolved)	µg/L	<4.3	21.3 J	72.9	76.1	10.6 J
Lead (dissolved)	µg/L	2.3 J	<2.0	2.1 J	<2.0	2.3 J
Magnesium (dissolved)	µg/L	18600	12100	11400	12900	14400
Manganese (dissolved)	µg/L	<0.35 J	7.0	<4.1 J	11.6	<0.70 J
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	2.2 J	2.6 J	2.8 J	<1.1	2.6 J
Potassium (dissolved)	µg/L	1240 J	3190	1350 J	1150 J	1530 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	21100	14800	13000	17300	13600
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	10.3 J	3.3 J	9.9 J	5.9 J	8.7 J
Zinc (dissolved)	µg/L	26.1	70.6	1020	19.1 J	122
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	235	156	163	208	168
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	22.5 J
Chloride	mg/L	7.0	1.4	1.5	1.8	18.8
Nitrate (as N)	mg/L	7.4 J	0.46 J	1.3 J	0.45 J	4.5 J
Nitrite/Nitrate	mg/L	7.3	0.49	1.3	0.48	4.4

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Marlow Well	Out-of-Use Marlow Well (No. 2)
Sample Name:	Asher-GW-010719	AtwoodH-GW-010419	AtwoodS-GW-010419	Lang-GW-011519	Marlow-GW-010719	No2-GW-011019
Sample Date:	01/07/2019	01/04/2019	01/04/2019	01/15/2019	01/07/2019	01/10/2019

Parameters	Unit						
General Chemistry (Continued)							
Sulfate	mg/L	24.2 J	4.2 J	4.8 J	2.2	14.6 J	4.4
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	R	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	353	202	214	232	284	266
Total organic carbon (TOC)	mg/L	1.4	0.64 J	0.80 J	0.68 J	1.1 J	0.98 J

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-1D	MW-1S	MW-2D	MW-2D	MW-3D	MW-3D	MW-4D
Sample Name:	MW1D-GW-122118	MW1S-GW-122018	MW2D-GW-122118	FD5-GW-122118	MW3D-GW-121818	FD1-GW-121818	MW4D-GW-011519
Sample Date:	12/21/2018	12/20/2018	12/21/2018	12/21/2018 Duplicate	12/18/2018	12/18/2018 Duplicate	01/15/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19 J	<0.19 J	<0.19 J	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	12.9 J
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078 J	<0.078 J	<0.078 J	<0.078 J	<0.078	<0.078

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-1D	MW-1S	MW-2D	MW-2D	MW-3D	MW-3D	MW-4D
Sample Name:	MW1D-GW-122118	MW1S-GW-122018	MW2D-GW-122118	FD5-GW-122118	MW3D-GW-121818	FD1-GW-121818	MW4D-GW-011519
Sample Date:	12/21/2018	12/20/2018	12/21/2018	12/21/2018	12/18/2018	12/18/2018	01/15/2019
				Duplicate		Duplicate	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	6.5
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45	1.0
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	1.0 J
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18 J	<0.18 J	<0.18 J	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.17 J
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-1D	MW-1S	MW-2D	MW-2D	MW-3D	MW-3D	MW-4D
Sample Name:	MW1D-GW-122118	MW1S-GW-122018	MW2D-GW-122118	FD5-GW-122118	MW3D-GW-121818	FD1-GW-121818	MW4D-GW-011519
Sample Date:	12/21/2018	12/20/2018	12/21/2018	12/21/2018 Duplicate	12/18/2018	12/18/2018 Duplicate	01/15/2019
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	106	71.4	<4.9	<4.9
Metals							
Aluminum (dissolved)	µg/L	27.9 J	919	33.3 J	32.1 J	24.0 J	352
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	74.4	251	97.1	96.6	43.0	80.4
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	0.13 J
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	50600	117000	39000	38900	31900	31300
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	1.3 J	1.9 J	<0.49
Cobalt (dissolved)	µg/L	<0.50	1.0 J	1.4 J	1.4 J	<0.50	10.5
Copper (dissolved)	µg/L	<1.2	1.8 J	<1.2	<1.2	2.1 J	<1.2
Iron (dissolved)	µg/L	15.2 J	770	2240	2210	43.5 J	23.1 J
Lead (dissolved)	µg/L	<2.0	2.4 J	2.1 J	<2.0	<2.0	2.3 J
Magnesium (dissolved)	µg/L	12500	31400	10700	10600	9470	9300
Manganese (dissolved)	µg/L	52.6	9.9	989	990	10.4	6.2
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	1.1 J	19.1 J	<1.1
Potassium (dissolved)	µg/L	1360 J	<310	2710	2700	1110 J	1060 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	11300	39700	15500	15500	12100	11900
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	1.4 J	14.2 J	0.61 J	0.72 J	1.5 J	1.5 J
Zinc (dissolved)	µg/L	5.7 J	30.1	<2.5	16.7 J	171 J	<2.5 J
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	205	496	185	185	150	157
Chemical oxygen demand (COD)	mg/L	<17.0	25.7 J	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	1.9 J	8.1	1.6 J	1.7 J	1.6	1.6
Nitrate (as N)	mg/L	0.12 J	0.069 J	0.067 J	0.070 J	0.15	0.15
Nitrite/Nitrate	mg/L	0.099 J	0.040 J	0.050 J	0.050 J	0.15	0.15

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	MW-1D	MW-1S	MW-2D	MW-2D	MW-3D	MW-3D	MW-4D
Sample Name:	MW1D-GW-122118	MW1S-GW-122018	MW2D-GW-122118	FD5-GW-122118	MW3D-GW-121818	FD1-GW-121818	MW4D-GW-011519
Sample Date:	12/21/2018	12/20/2018	12/21/2018	12/21/2018	12/18/2018	12/18/2018	01/15/2019
				Duplicate		Duplicate	

Parameters	Unit							
General Chemistry (Continued)								
Sulfate	mg/L	4.0 J	23.1	1.6 J	1.6 J	3.3	3.4	10.5
Sulfide	mg/L	0.020 J	0.079	<0.0054	<0.0054	0.011 J	R	R
Total dissolved solids (TDS)	mg/L	248	572	214	215	195	202	266
Total organic carbon (TOC)	mg/L	1.1	6.1	1.0	1.1	0.69 J	0.74 J	6.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D
Sample Name:	MW5D-GW-121818	MW6D-GW-121718	MW6s-GW-122018	MW6U-GW-121718	MW7S-GW-122018	MW8S-GW-122018	MW9D-GW-121818
Sample Date:	12/18/2018	12/17/2018	12/20/2018	12/17/2018	12/20/2018	12/20/2018	12/18/2018

Parameters	Unit							
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	µg/L	<0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21 J	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26 J	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7 J	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24 J	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22 J	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27 J	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12 J	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070 J	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3 J	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19	<0.19 J	<0.19	<0.19 J	<0.19 J	<0.19
2,2-Dichloropropane	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99 J	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88 J	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15 J	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13 J	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42 J	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2 J	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2 J	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91 J	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10 J	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21 J	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22 J	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80 J	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8 J	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078 J	<0.078	<0.078 J	<0.078	<0.078 J	<0.078 J	<0.078

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D
Sample Name:	MW5D-GW-121818	MW6D-GW-121718	MW6s-GW-122018	MW6U-GW-121718	MW7S-GW-122018	MW8S-GW-122018	MW9D-GW-121818
Sample Date:	12/18/2018	12/17/2018	12/20/2018	12/17/2018	12/20/2018	12/20/2018	12/18/2018

Parameters	Unit							
Volatile Organic Compounds (Continued)								
Carbon tetrachloride	µg/L	<0.19 J	4.8	<0.19	74.0	1.3	147	86.8
Chlorobenzene	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27 J	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49 J	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45 J	<0.45	<0.45	2.9	<0.45	43.5	4.1
Chloromethane (Methyl chloride)	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15 J	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20 J	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15 J	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12 J	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23 J	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13 J	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14 J	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31 J	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31 J	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98 J	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24 J	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10 J	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48 J	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16 J	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19 J	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11 J	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2 J	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18 J	<0.18 J	<0.18
tert-Butylbenzene	µg/L	<0.15 J	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17 J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2 J	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083 J	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12 J	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0 J	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15 J	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23 J	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22 J	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1 J	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	MW-5D MW5D-GW-121818 12/18/2018	MW-6D MW6D-GW-121718 12/17/2018	MW-6S MW6s-GW-122018 12/20/2018	MW-6U MW6U-GW-121718 12/17/2018	MW-7S MW7S-GW-122018 12/20/2018	MW-8S MW8S-GW-122018 12/20/2018	MW-9D MW9D-GW-121818 12/18/2018
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Vinyl chloride	µg/L	<0.092 J	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31 J	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Metals							
Aluminum (dissolved)	µg/L	<15.5	<15.5	137 J	<15.5	39.4 J	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	96.0	17.9	34.9	43.4	21.8	40.0
Beryllium (dissolved)	µg/L	<0.12	0.12 J	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	0.29 J
Calcium (dissolved)	µg/L	48800	37400	33800	56200	34100	44300
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	1.6 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	8.3 J	79.4	128	15.4 J	64.4	606
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0 J
Magnesium (dissolved)	µg/L	14600	16800	9920	17100	8980	14600
Manganese (dissolved)	µg/L	2.0 J	<0.84 J	2.9 J	1.0 J	4.4 J	84.0
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	0.25	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1100 J	7240	374 J	2220 J	311 J	1130 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	16000	19300	11000	15300	9980	12100
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	6.9 J	15.3	4.8 J	5.1 J	1.5 J	1.1 J
Zinc (dissolved)	µg/L	2.7 J	5.2 J	3.4 J	<103	10.4 J	8.5 J
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	223	196	152	230	89.2	136
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	17.6 J	<17.0	26.3 J	<17.0
Chloride	mg/L	1.1 J	3.7 J	1.6 J	8.4 J	9.9	18.5
Nitrate (as N)	mg/L	0.18	0.68 J	0.17 J	1.8 J	6.9	8.5
Nitrite/Nitrate	mg/L	0.19	0.69	0.15	1.7	5.3	7.3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D
Sample Name:	MW5D-GW-121818	MW6D-GW-121718	MW6s-GW-122018	MW6U-GW-121718	MW7S-GW-122018	MW8S-GW-122018	MW9D-GW-121818
Sample Date:	12/18/2018	12/17/2018	12/20/2018	12/17/2018	12/20/2018	12/20/2018	12/18/2018

Parameters	Unit	MW-5D	MW-6D	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D
General Chemistry (Continued)								
Sulfate	mg/L	1.9	5.5 J	1.8 J	7.3 J	16.7	22.2	36.6
Sulfide	mg/L	R	R	<0.0054	R	<0.0054	<0.0054	R
Total dissolved solids (TDS)	mg/L	262	246	207	306	197	278	334
Total organic carbon (TOC)	mg/L	0.85 J	0.79 J	1.1	1.6 J	5.6	2.3	1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-9D	MW-9S	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S
Sample Name:	FD2-GW-121818	MW9s-GW-122118	FD4-GW-122118	MW9U-GW-121818	FD3-GW-121818	MW10s-GW-122018	MW11s-GW-122018
Sample Date:	12/18/2018 Duplicate	12/21/2018	12/21/2018 Duplicate	12/18/2018	12/18/2018 Duplicate	12/20/2018	12/20/2018
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19 J	<0.19 J	<0.19	<0.19 J	<0.19 J
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078 J	<0.078 J	<0.078	0.17 J	<0.078 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-9D	MW-9S	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S	
Sample Name:	FD2-GW-121818	MW9s-GW-122118	FD4-GW-122118	MW9U-GW-121818	FD3-GW-121818	MW10s-GW-122018	MW11s-GW-122018	
Sample Date:	12/18/2018 Duplicate	12/21/2018	12/21/2018 Duplicate	12/18/2018	12/18/2018 Duplicate	12/20/2018	12/20/2018	
Parameters	Unit							
Volatile Organic Compounds (Continued)								
Carbon tetrachloride	µg/L	85.9	226	227	15.9	15.1	0.42 J	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	3.8	34.1	37.7	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18 J	<0.18 J	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	MW-9D FD2-GW-121818 12/18/2018 Duplicate	MW-9S MW9s-GW-122118 12/21/2018	MW-9S FD4-GW-122118 12/21/2018 Duplicate	MW-9U MW9U-GW-121818 12/18/2018	MW-9U FD3-GW-121818 12/18/2018 Duplicate	MW-10S MW10s-GW-122018 12/20/2018	MW-11S MW11s-GW-122018 12/20/2018	
Parameters	Unit							
Volatile Organic Compounds (Continued)								
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	
Dissolved Gases								
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	
Metals								
Aluminum (dissolved)	µg/L	<15.5	<15.5	<15.5	55.6 J	52.5 J	51.7 J	25.8 J
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	29.7	86.0	84.4	65.5	65.9	30.1	40.5
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	0.13 J	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	53500	74000	74800	63300	63100	75600	46400
Chromium (dissolved)	µg/L	<0.49	0.78 J	0.69 J	0.93 J	0.95 J	<0.49	<0.49
Cobalt (dissolved)	µg/L	0.57 J	1.7 J	1.4 J	0.56 J	0.66 J	0.65 J	<0.50
Copper (dissolved)	µg/L	<1.2	<1.2	1.4 J	2.5 J	2.0 J	9.5 J	<1.2
Iron (dissolved)	µg/L	<4.3	14.0 J	22.3 J	92.6	83.7	63.6	42.7 J
Lead (dissolved)	µg/L	<2.0	<2.0	2.1 J	<2.0	<2.0	2.5 J	<2.0
Magnesium (dissolved)	µg/L	19600	30200	31100	16900	16800	21500	13200
Manganese (dissolved)	µg/L	3.0 J	148	149	8.4	8.3	2.0 J	3.9 J
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	2.3 J	1.7 J	<1.1	<1.1
Potassium (dissolved)	µg/L	2550	3020	3150	6740	6720	<310	606 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	15700	80600	84400	150000	149000	14100	18500
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	7.3 J	1.6 J	1.9 J	2.8 J	2.7 J	2.9 J	5.9 J
Zinc (dissolved)	µg/L	11.1 J	28.8	28.9	5.2 J	4.1 J	3.4 J	5.0 J
General Chemistry								
Alkalinity, total (as CaCO ₃)	mg/L	164	154 J	84.1 J	61.8	61.4	345	204
Chemical oxygen demand (COD)	mg/L	<17.0	79.8	61.3	35.5 J	31.8 J	19.4 J	18.8 J
Chloride	mg/L	31.4	228 J	286 J	373	381	<0.71 J	1.2 J
Nitrate (as N)	mg/L	4.1	10.5 J	9.0 J	1.2	1.2	0.19 J	0.063 J
Nitrite/Nitrate	mg/L	3.8	8.7	8.0	1.6	1.6	0.17	0.028 J

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	MW-9D	MW-9S	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S
Sample Name:	FD2-GW-121818	MW9s-GW-122118	FD4-GW-122118	MW9U-GW-121818	FD3-GW-121818	MW10s-GW-122018	MW11s-GW-122018
Sample Date:	12/18/2018 Duplicate	12/21/2018	12/21/2018 Duplicate	12/18/2018	12/18/2018 Duplicate	12/20/2018	12/20/2018

Parameters

General Chemistry (Continued)

Parameters	Unit	MW-9D	MW-9S	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S
Sulfate	mg/L	36.7	66.5 J	61.4 J	8.7	9.1	2.0 J	3.3 J
Sulfide	mg/L	R	0.028	0.033	0.0058 J	R	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	342	713	667	758	788	336	247
Total organic carbon (TOC)	mg/L	1.1	3.6	3.6	4.6	4.5	1.2 J	0.89 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12s-GW-122018	MW13s-GW-011019	MW14D-GW-011419	MW15D-GW-121718	MW16D-GW-121718	MW17D-GW-121818
Sample Date:	12/20/2018	01/10/2019	01/14/2019	12/17/2018	12/17/2018	12/18/2018
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078 J	<0.078	<0.078	<0.078	0.41 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D	
Sample Name:	MW12s-GW-122018	MW13s-GW-011019	MW14D-GW-011419	MW15D-GW-121718	MW16D-GW-121718	MW17D-GW-121818	
Sample Date:	12/20/2018	01/10/2019	01/14/2019	12/17/2018	12/17/2018	12/18/2018	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	9.5	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	0.52 J	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12s-GW-122018	MW13s-GW-011019	MW14D-GW-011419	MW15D-GW-121718	MW16D-GW-121718	MW17D-GW-121818
Sample Date:	12/20/2018	01/10/2019	01/14/2019	12/17/2018	12/17/2018	12/18/2018
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	6.4 J
Methane	µg/L	<4.9	<4.9	5.2 J	<4.9	<4.9
Metals						
Aluminum (dissolved)	µg/L	44.3 J	49.1 J	22.5 J	29.3 J	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	191	61.2	27.0	11.0	56.9
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	0.13 J
Cadmium (dissolved)	µg/L	0.87 J	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	75900	35200	26700	38900	59300
Chromium (dissolved)	µg/L	<0.49	0.73 J	<0.49	<0.49	0.78 J
Cobalt (dissolved)	µg/L	1.9 J	<0.50	1.1 J	0.59 J	<0.50
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	12.4 J	39.3 J	449	27.1 J	<4.3
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Magnesium (dissolved)	µg/L	22600	10800	7990	14400	17600
Manganese (dissolved)	µg/L	3.1 J	0.58 J	441	3.9 J	<0.22
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	2.4 J	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	<310	1260 J	329 J	2670	1310 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	34100	14200	24300	15000	17200
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	3.3 J	10.6 J	4.4 J	10.3 J	9.7 J
Zinc (dissolved)	µg/L	4.2 J	<2.5	3.5 J	<2.5	<2.5
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	244	162	151	190	219
Chemical oxygen demand (COD)	mg/L	21.8 J	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	43.8 J	3.0	1.2	3.1 J	5.9 J
Nitrate (as N)	mg/L	7.2 J	0.49	0.072 J	2.1 J	5.8 J
Nitrite/Nitrate	mg/L	5.5	0.39 J	0.043 J	2.0	5.4

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sample Name:	MW12s-GW-122018	MW13s-GW-011019	MW14D-GW-011419	MW15D-GW-121718	MW16D-GW-121718	MW17D-GW-121818
Sample Date:	12/20/2018	01/10/2019	01/14/2019	12/17/2018	12/17/2018	12/18/2018

Parameters

General Chemistry (Continued)

Parameters	Unit	MW-12S	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D
Sulfate	mg/L	44.8 J	6.7	1.5	6.3 J	18.5 J	76.1
Sulfide	mg/L	<0.0054	<0.0054	R	R	R	R
Total dissolved solids (TDS)	mg/L	466	210	197	243	329	403
Total organic carbon (TOC)	mg/L	3.4	0.74 J	2.5	0.65 J	1.0	9.5

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-18D	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S
Sample Name:	MW18D-GW-121718	MW19D-GW-011419	MW20D-GW-011519	MW21D-GW-121718	MW24s-GW-122118	MW25s-GW-122118
Sample Date:	12/17/2018	01/14/2019	01/15/2019	12/17/2018	12/21/2018	12/21/2018
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20 J	<0.20	<0.20	<0.20 J	<0.20
1,1,1-Trichloroethane	µg/L	<0.14 J	<0.14	<0.14	<0.14 J	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17
1,1,2-Trichloroethane	µg/L	<0.18 J	<0.18	<0.18	<0.18 J	<0.18
1,1-Dichloroethane	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17
1,1-Dichloroethene	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16
1,1-Dichloropropene	µg/L	<0.20 J	<0.20	<0.20	<0.20 J	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21 J	<0.21	<0.21	<0.21 J	<0.21
1,2,3-Trichloropropane	µg/L	<0.26 J	<0.26	<0.26	<0.26 J	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20 J	<0.20	<0.20	<0.20 J	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20 J	<0.20	<0.20	<0.20 J	0.20 J
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7 J	<1.7	<1.7	<1.7 J	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24 J	<0.24	<0.24	<0.24 J	<0.24
1,2-Dichlorobenzene	µg/L	<0.14 J	<0.14	<0.14	<0.14 J	<0.14
1,2-Dichloroethane	µg/L	<0.22 J	<0.22	<0.22	<0.22 J	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27 J	<0.27	<0.27	<0.27 J	<0.27
1,2-Dichloropropane	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12 J	<0.12	<0.12	<0.12 J	<0.12
1,3-Dichlorobenzene	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16
1,3-Dichloropropane	µg/L	<0.070 J	<0.070	<0.070	<0.070 J	<0.070
1,4-Dichlorobenzene	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17
1,4-Dioxane	µg/L	<16.3 J	<16.3	<16.3	<16.3 J	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19	<0.19	<0.19 J	<0.19 J
2,2-Dichloropropane	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99 J	<0.99	<0.99	<0.99 J	<0.99
2-Chlorotoluene	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16
2-Hexanone	µg/L	<0.88 J	<0.88	<0.88	<0.88 J	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15 J	<0.15	<0.15	<0.15 J	<0.15
4-Chlorotoluene	µg/L	<0.13 J	<0.13	<0.13	<0.13 J	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42 J	<0.42	<0.42	<0.42 J	<0.42
Acetone	µg/L	<9.2 J	9.6 J	<9.2	<9.2 J	14.5 J
Acrolein	µg/L	<1.2 J	<1.2	<1.2	<1.2 J	<1.2
Acrylonitrile	µg/L	<0.91 J	<0.91	<0.91	<0.91 J	<0.91
Benzene	µg/L	<0.10 J	<0.10	<0.10	<0.10 J	<0.10
Bromobenzene	µg/L	<0.21 J	<0.21	<0.21	<0.21 J	<0.21
Bromodichloromethane	µg/L	<0.22 J	<0.22	<0.22	<0.22 J	<0.22
Bromoform	µg/L	<0.80 J	<0.80	<0.80	<0.80 J	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8 J	<1.8	<1.8	<1.8 J	<1.8
Carbon disulfide	µg/L	<0.078 J	1.1	<0.078	<0.078 J	<0.078 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-18D	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	
Sample Name:	MW18D-GW-121718	MW19D-GW-011419	MW20D-GW-011519	MW21D-GW-121718	MW24s-GW-122118	MW25s-GW-122118	
Sample Date:	12/17/2018	01/14/2019	01/15/2019	12/17/2018	12/21/2018	12/21/2018	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Carbon tetrachloride	µg/L	<0.19 J	509	27.6	<0.19 J	6.9	52.9
Chlorobenzene	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27 J	<0.27	<0.27	<0.27 J	<0.27	<0.27
Chloroethane	µg/L	<0.49 J	<0.49	<0.49	<0.49 J	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45 J	21.4	1.1	<0.45 J	6.5	24.9
Chloromethane (Methyl chloride)	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15 J	<0.15	<0.15	<0.15 J	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20 J	<0.20	<0.20	<0.20 J	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15 J	<0.15	<0.15	<0.15 J	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12 J	<0.12	<0.12	<0.12 J	<0.12	<0.12
Dibromomethane	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23 J	<0.23	<0.23	<0.23 J	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14 J	<0.14	<0.14	<0.14 J	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13 J	<0.13	<0.13	<0.13 J	<0.13	<0.13
Ethylbenzene	µg/L	<0.14 J	<0.14	<0.14	<0.14 J	0.26 J	<0.14
Hexachlorobutadiene	µg/L	<0.31 J	<0.31	<0.31	<0.31 J	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18 J	<0.18	<0.18	<0.18 J	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31 J	<0.31	<0.31	<0.31 J	0.68 J	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16	<0.16
Methylene chloride	µg/L	<0.98 J	<0.98	<0.98	<0.98 J	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24 J	<0.24	<0.24	<0.24 J	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10 J	<0.10	<0.10	<0.10 J	<0.10	<0.10
Naphthalene	µg/L	<0.48 J	<0.48	<0.48	<0.48 J	<0.48	<0.48
o-Xylene	µg/L	<0.16 J	<0.16	<0.16	<0.16 J	<0.16	<0.16
Styrene	µg/L	<0.19 J	<0.19	<0.19	<0.19 J	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11 J	<0.11	<0.11	<0.11 J	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2 J	<1.2	<1.2	<1.2 J	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18	<0.18	<0.18 J	<0.18 J	<0.18 J
tert-Butylbenzene	µg/L	<0.15 J	<0.15	<0.15	<0.15 J	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17 J	<0.17	<0.17	<0.17 J	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2 J	<2.2	<2.2	<2.2 J	<2.2	<2.2
Toluene	µg/L	<0.083 J	<0.083	<0.083	<0.083 J	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12 J	<0.12	<0.12	<0.12 J	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18 J	<0.18	<0.18	<0.18 J	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0 J	<2.0	<2.0	<2.0 J	<2.0	<2.0
Trichloroethene	µg/L	<0.15 J	<0.15	<0.15	<0.15 J	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23 J	<0.23	<0.23	<0.23 J	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22 J	<0.22	<0.22	<0.22 J	<0.22	<0.22
Vinyl acetate	µg/L	<1.1 J	<1.1	<1.1	<1.1 J	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID:	MW-18D	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	
Sample Name:	MW18D-GW-121718	MW19D-GW-011419	MW20D-GW-011519	MW21D-GW-121718	MW24s-GW-122118	MW25s-GW-122118	
Sample Date:	12/17/2018	01/14/2019	01/15/2019	12/17/2018	12/21/2018	12/21/2018	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Vinyl chloride	µg/L	<0.092 J	<0.092	<0.092	<0.092 J	<0.092	<0.092
Xylenes (total)	µg/L	<0.31 J	<0.31	<0.31	<0.31 J	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Metals							
Aluminum (dissolved)	µg/L	<15.5	<15.5	16.3 J	<15.5	1220	174 J
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	50.8	10.9	17.6	67.9	153	78.2
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	21500	43700	59100	22300	106000	48200
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	<0.49	7.9 J	2.2 J
Cobalt (dissolved)	µg/L	<0.50	<0.50	0.60 J	<0.50	4.3 J	4.3 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	4.9 J	<1.2
Iron (dissolved)	µg/L	73.2	12.6 J	12.5 J	174	1870	286
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	4.2 J	<2.0
Magnesium (dissolved)	µg/L	15300	18700	21300	19900	103000	14800
Manganese (dissolved)	µg/L	43.8	1.3 J	<4.3 J	79.7	365	340
Mercury (dissolved)	µg/L	<0.078	<0.078	0.090 J	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	3730	4650	3470	4090	7460	3780
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	18400	15200	19200	21500	43400	23500
Thallium (dissolved)	µg/L	<4.3	4.7 J	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	0.33 J	6.8 J	5.4 J	0.36 J	5.5 J	2.7 J
Zinc (dissolved)	µg/L	<2.5	3.6 J	4.4 J	<2.5	7.9 J	5.3 J
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	157	177	276	185	106	333
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	97.2	34.5 J
Chloride	mg/L	2.4 J	7.2	5.6	2.6 J	382 J	59.8 J
Nitrate (as N)	mg/L	<0.015 J	4.5 J	1.2 J	<0.015 J	0.12 J	2.8 J
Nitrite/Nitrate	mg/L	<0.018	4.3	1.3 J	<0.018	0.31	3.3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	MW-18D	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S
Sample Name:	MW18D-GW-121718	MW19D-GW-011419	MW20D-GW-011519	MW21D-GW-121718	MW24s-GW-122118	MW25s-GW-122118
Sample Date:	12/17/2018	01/14/2019	01/15/2019	12/17/2018	12/21/2018	12/21/2018

Parameters

General Chemistry (Continued)

Parameters	Unit						
Sulfate	mg/L	8.3 J	23.4	7.3	7.6 J	53.2 J	38.9 J
Sulfide	mg/L	R	R	R	R	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	194	285	313	219	945	348
Total organic carbon (TOC)	mg/L	0.64 J	0.74 J	1.3 J	0.83 J	16.7	2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

	Location ID:	Randall Well	Reed Well (W30)	Silva Well	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
	Sample Name:	Randall-GW-010719	Reed-GW-010719	Silva-GW-010419	Stark-GW-010419	SG1-GW-011519	SG2-GW-011519	Thorson-GW-010719
	Sample Date:	01/07/2019	01/07/2019	01/04/2019	01/04/2019	01/15/2019	01/15/2019	01/04/2019
Parameters	Unit							
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.76 J	<0.078 J	<0.078	<0.078	<0.078	<0.078	<0.078

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	Randall Well Randall-GW-010719 01/07/2019	Reed Well (W30) Reed-GW-010719 01/07/2019	Silva Well Silva-GW-010419 01/04/2019	Stark Well (W15) Stark-GW-010419 01/04/2019	Stream Gauge 1 SG1-GW-011519 01/15/2019	Stream Gauge 2 SG2-GW-011519 01/15/2019	Thorson Well Thorson-GW-010719 01/04/2019
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Carbon tetrachloride	µg/L	250	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	9.8	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.24 J	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	17.8	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	Randall Well Randall-GW-010719 01/07/2019	Reed Well (W30) Reed-GW-010719 01/07/2019	Silva Well Silva-GW-010419 01/04/2019	Stark Well (W15) Stark-GW-010419 01/04/2019	Stream Gauge 1 SG1-GW-011519 01/15/2019	Stream Gauge 2 SG2-GW-011519 01/15/2019	Thorson Well Thorson-GW-010719 01/04/2019
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	--	--
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	--	--
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	--	--
Metals							
Aluminum (dissolved)	µg/L	<15.5	<15.5	<15.5	<15.5	--	--
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	--	--
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	--	--
Barium (dissolved)	µg/L	23.5	46.7	31.2	36.1	--	--
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	--	--
Cadmium (dissolved)	µg/L	<0.26	0.33 J	0.29 J	0.67 J	--	--
Calcium (dissolved)	µg/L	46300	27600	40100	32700	--	--
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	<0.49	--	--
Cobalt (dissolved)	µg/L	0.73 J	1.2 J	1.1 J	1.1 J	--	--
Copper (dissolved)	µg/L	15.4	6.0 J	5.8 J	98.8	--	--
Iron (dissolved)	µg/L	6.9 J	134	5.7 J	5.5 J	--	--
Lead (dissolved)	µg/L	2.3 J	2.6 J	<2.0	2.3 J	--	--
Magnesium (dissolved)	µg/L	14600	10800	13300	11500	--	--
Manganese (dissolved)	µg/L	<0.97 J	<3.3 J	<0.47 J	<1.6 J	--	--
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	--	--
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	2.2 J	--	--
Potassium (dissolved)	µg/L	1380 J	3140	1610 J	1730 J	--	--
Selenium (dissolved)	µg/L	<5.8	6.3 J	<5.8	<5.8	--	--
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	--	--
Sodium (dissolved)	µg/L	14700	13500	15300	17800	--	--
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	--	--
Vanadium (dissolved)	µg/L	5.3 J	23.6	9.3 J	6.3 J	--	--
Zinc (dissolved)	µg/L	121	31.2	24.3	104	--	--
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	182	144	174	116	--	--
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	22.2 J	<17.0	--	--
Chloride	mg/L	5.9	1.4	2.4	1.4	--	--
Nitrate (as N)	mg/L	2.2 J	0.28 J	2.4 J	14.7 J	--	--
Nitrite/Nitrate	mg/L	2.3	0.31	2.4	14.6	--	--

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

Location ID:	Randall Well	Reed Well (W30)	Silva Well	Stark Well (W15)	Stream Gauge 1	Stream Gauge 2	Thorson Well
Sample Name:	Randall-GW-010719	Reed-GW-010719	Silva-GW-010419	Stark-GW-010419	SG1-GW-011519	SG2-GW-011519	Thorson-GW-010719
Sample Date:	01/07/2019	01/07/2019	01/04/2019	01/04/2019	01/15/2019	01/15/2019	01/04/2019

Parameters	Unit							
General Chemistry (Continued)								
Sulfate	mg/L	9.5 J	7.4 J	10.9 J	10.5 J	--	--	--
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	<0.0054	--	--	--
Total dissolved solids (TDS)	mg/L	248	192	239	258	--	--	--
Total organic carbon (TOC)	mg/L	0.84 J	0.63 J	0.80 J	0.73 J	--	--	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

	Location ID: Sample Name: Sample Date:	Thorson Well Thorson-GW-010719 01/07/2019	Out-of-Use Marlow Well (W20) W20-GW-011019 01/10/2019	Out-of-Use Freeman School Well (W26) W26-GW-011019 01/10/2019	WS-5 Freeman Primary-GW-121918 12/19/2018
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	--	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	--	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	--	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	--	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	--	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	--	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	--	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	--	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	--	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	--	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	--	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	--	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	--	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	--	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	--	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	--	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	--	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	--	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	--	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	--	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	--	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	--	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	--	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	--	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	--	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	--	<0.16	<0.16	<0.16
2-Hexanone	µg/L	--	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	--	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	--	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	--	<0.42	<0.42	<0.42
Acetone	µg/L	--	<9.2	<9.2	<9.2
Acrolein	µg/L	--	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	--	<0.91	<0.91	<0.91
Benzene	µg/L	--	<0.10	<0.10	<0.10
Bromobenzene	µg/L	--	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	--	<0.22	<0.22	<0.22
Bromoform	µg/L	--	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	--	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	--	<0.078	<0.078	<0.078

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	Thorson Well Thorson-GW-010719 01/07/2019	Out-of-Use Marlow Well (W20) W20-GW-011019 01/10/2019	Out-of-Use Freeman School Well (W26) W26-GW-011019 01/10/2019	WS-5 Freeman Primary-GW-121918 12/19/2018
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Carbon tetrachloride	µg/L	--	<0.19	25.2
Chlorobenzene	µg/L	--	<0.17	<0.17
Chlorobromomethane	µg/L	--	<0.27	<0.27
Chloroethane	µg/L	--	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	--	<0.45	2.0
Chloromethane (Methyl chloride)	µg/L	--	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	--	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	--	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	--	<0.15	<0.15
Dibromochloromethane	µg/L	--	<0.12	<0.12
Dibromomethane	µg/L	--	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	--	<0.23	<0.23
Dichlorofluoromethane	µg/L	--	<0.14	<0.14
Diisopropyl ether	µg/L	--	<0.13	<0.13
Ethylbenzene	µg/L	--	<0.14	<0.14
Hexachlorobutadiene	µg/L	--	<0.31	<0.31
Isopropyl benzene	µg/L	--	<0.18	<0.18
m&p-Xylenes	µg/L	--	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	--	<0.16	<0.16
Methylene chloride	µg/L	--	<0.98	<0.98
N-Butylbenzene	µg/L	--	<0.24	<0.24
N-Propylbenzene	µg/L	--	<0.10	<0.10
Naphthalene	µg/L	--	<0.48	<0.48
o-Xylene	µg/L	--	<0.16	<0.16
Styrene	µg/L	--	<0.19	<0.19
tert-Amyl methyl ether	µg/L	--	<0.11	<0.11
tert-Butyl alcohol	µg/L	--	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	--	<0.18	<0.18
tert-Butylbenzene	µg/L	--	<0.15	<0.15
Tetrachloroethene	µg/L	--	<0.17	<0.17
Tetrahydrofuran	µg/L	--	<2.2	<2.2
Toluene	µg/L	--	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	--	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	--	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	--	<2.0	<2.0
Trichloroethene	µg/L	--	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	--	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	--	<0.22	<0.22
Vinyl acetate	µg/L	--	<1.1	<1.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2018 – January 2019

Location ID: Sample Name: Sample Date:	Thorson Well Thorson-GW-010719 01/07/2019	Out-of-Use Marlow Well (W20) W20-GW-011019 01/10/2019	Out-of-Use Freeman School Well (W26) W26-GW-011019 01/10/2019	WS-5 Freeman Primary-GW-121918 12/19/2018
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Vinyl chloride	µg/L	--	<0.092	<0.092
Xylenes (total)	µg/L	--	<0.31	<0.31
Dissolved Gases				
Ethane	µg/L	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	543	<4.9
Metals				
Aluminum (dissolved)	µg/L	<15.5	<15.5	17.7 J
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	55.6	6.5 J	57.4
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	0.72 J	<0.26	<0.26
Calcium (dissolved)	µg/L	25100	13000	37700
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	1.4 J	<0.50	1.2 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	2060	340	<4.3
Lead (dissolved)	µg/L	<2.0	<2.0	2.0 J
Magnesium (dissolved)	µg/L	12700	6930	11100
Manganese (dissolved)	µg/L	34.6	86.8	0.31 J
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	1.5 J	<1.1	1.4 J
Potassium (dissolved)	µg/L	4040	2010 J	2100 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	15500	9620	14800
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	0.30 J	<0.29	7.0 J
Zinc (dissolved)	µg/L	28.2	7.6 J	84.3
General Chemistry				
Alkalinity, total (as CaCO ₃)	mg/L	156	88.1	163
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0
Chloride	mg/L	1.4	2.4	3.4
Nitrate (as N)	mg/L	<0.015 J	<0.015	2.0
Nitrite/Nitrate	mg/L	<0.018	<0.018	2.0 J

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 – January 2019**

	Location ID: Sample Name: Sample Date:	Thorson Well Thorson-GW-010719 01/07/2019	Out-of-Use Marlow Well (W20) W20-GW-011019 01/10/2019	Out-of-Use Freeman School Well (W26) W26-GW-011019 01/10/2019	WS-5 Freeman Primary-GW-121918 12/19/2018
Parameters					
	Unit				
General Chemistry (Continued)					
Sulfate	mg/L	2.9 J	0.59 J	6.6	6.8
Sulfide	mg/L	0.0074 J	<0.0054	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	199	88.0	232	239
Total organic carbon (TOC)	mg/L	0.54 J	1.4	0.97 J	0.82 J

Notes:

- < - Not detected at the associated reporting limit
- - Not Applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW12s-GW-122018	48 hours	>96 hours	Nitrate (as N)	7.2 J	mg/L
	MW10s-GW-122018	48 hours	>96 hours	Nitrate (as N)	0.19 J	mg/L
	MW11s-GW-122018	48 hours	>96 hours	Nitrate (as N)	0.063 J	mg/L
	MW6s-GW-122018	48 hours	>96 hours	Nitrate (as N)	0.17 J	mg/L
	MW24s-GW-122118	48 hours	>96 hours	Nitrate (as N)	0.12 J	mg/L
	MW25s-GW-122118	48 hours	>96 hours	Nitrate (as N)	2.8 J	mg/L
	MW9s-GW-122118	48 hours	>96 hours	Nitrate (as N)	10.5 J	mg/L
	MW1D-GW-122118	48 hours	>96 hours	Nitrate (as N)	0.12 J	mg/L
	MW2D-GW-122118	48 hours	>96 hours	Nitrate (as N)	0.067 J	mg/L
	FD4-GW-122118	48 hours	>96 hours	Nitrate (as N)	9.0 J	mg/L
	FD5-GW-122118	48 hours	>96 hours	Nitrate (as N)	0.070 J	mg/L
	Silva-GW-010419	48 hours	>96 hours	Nitrate (as N)	2.4 J	mg/L
	Stark-GW-010419	48 hours	>96 hours	Nitrate (as N)	14.7 J	mg/L
	AtwoodH-GW-010419	48 hours	>96 hours	Nitrate (as N)	0.46 J	mg/L
	AtwoodS-GW-010419	48 hours	>96 hours	Nitrate (as N)	1.3 J	mg/L

Notes:

J - Estimated concentration

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW21D-GW-121718	1,1,1,2-Tetrachloroethane	<0.20 J	ug/L
		1,1,1-Trichloroethane	<0.14 J	ug/L
		1,1,2,2-Tetrachloroethane	<0.17 J	ug/L
		1,1,2-Trichloroethane	<0.18 J	ug/L
		1,1-Dichloroethane	<0.17 J	ug/L
		1,1-Dichloroethene	<0.16 J	ug/L
		1,1-Dichloropropene	<0.20 J	ug/L
		1,2,3-Trichlorobenzene	<0.21 J	ug/L
		1,2,3-Trichloropropane	<0.26 J	ug/L
		1,2,4-Trichlorobenzene	<0.20 J	ug/L
		1,2,4-Trimethylbenzene	<0.20 J	ug/L
		1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	ug/L
		1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	ug/L
		1,2-Dichlorobenzene	<0.14 J	ug/L
		1,2-Dichloroethane	<0.22 J	ug/L
		1,2-Dichloroethene (total)	<0.27 J	ug/L
		1,2-Dichloropropane	<0.16 J	ug/L
		1,3,5-Trimethylbenzene	<0.12 J	ug/L
		1,3-Dichlorobenzene	<0.16 J	ug/L
		1,3-Dichloropropane	<0.070 J	ug/L
		1,4-Dichlorobenzene	<0.17 J	ug/L
		1,4-Dioxane	<16.3 J	ug/L
		2,2,4-Trimethylpentane	<0.19 J	ug/L
		2,2-Dichloropropane	<0.17 J	ug/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	ug/L
		2-Chlorotoluene	<0.16 J	ug/L
		2-Hexanone	<0.88 J	ug/L
		2-Phenylbutane (sec-Butylbenzene)	<0.15 J	ug/L
		4-Chlorotoluene	<0.13 J	ug/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	ug/L
Acetone	<9.2 J	ug/L		
Acrolein	<1.2 J	ug/L		
Acrylonitrile	<0.91 J	ug/L		

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW21D-GW-121718	Benzene	<0.10 J	ug/L
		Bromobenzene	<0.21 J	ug/L
		Bromodichloromethane	<0.22 J	ug/L
		Bromoform	<0.80 J	ug/L
		Bromomethane (Methyl bromide)	<1.8 J	ug/L
		Carbon disulfide	<0.078 J	ug/L
		Carbon tetrachloride	<0.19 J	ug/L
		Chlorobenzene	<0.17 J	ug/L
		Chlorobromomethane	<0.27 J	ug/L
		Chloroethane	<0.49 J	ug/L
		Chloroform (Trichloromethane)	<0.45 J	ug/L
		Chloromethane (Methyl chloride)	<0.16 J	ug/L
		cis-1,2-Dichloroethene	<0.15 J	ug/L
		cis-1,3-Dichloropropene	<0.20 J	ug/L
		Cymene (p-Isopropyltoluene)	<0.15 J	ug/L
		Dibromochloromethane	<0.12 J	ug/L
		Dibromomethane	<0.16 J	ug/L
		Dichlorodifluoromethane (CFC-12)	<0.23 J	ug/L
		Dichlorofluoromethane	<0.14 J	ug/L
		Diisopropyl ether	<0.13 J	ug/L
		Ethylbenzene	<0.14 J	ug/L
		Hexachlorobutadiene	<0.31 J	ug/L
		Isopropyl benzene	<0.18 J	ug/L
		m&p-Xylenes	<0.31 J	ug/L
		Methyl tert butyl ether (MTBE)	<0.16 J	ug/L
		Methylene chloride	<0.98 J	ug/L
		N-Butylbenzene	<0.24 J	ug/L
		N-Propylbenzene	<0.10 J	ug/L
		Naphthalene	<0.48 J	ug/L
		o-Xylene	<0.16 J	ug/L
Styrene	<0.19 J	ug/L		
tert-Amyl methyl ether	<0.11 J	ug/L		
tert-Butyl alcohol	<1.2 J	ug/L		

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW21D-GW-121718	tert-Butyl ethyl ether	<0.18 J	ug/L
		tert-Butylbenzene	<0.15 J	ug/L
		Tetrachloroethene	<0.17 J	ug/L
		Tetrahydrofuran	<2.2 J	ug/L
		Toluene	<0.083 J	ug/L
		trans-1,2-Dichloroethene	<0.12 J	ug/L
		trans-1,3-Dichloropropene	<0.18 J	ug/L
		trans-1,4-Dichloro-2-butene	<2.0 J	ug/L
		Trichloroethene	<0.15 J	ug/L
		Trichlorofluoromethane (CFC-11)	<0.23 J	ug/L
		Trifluorotrchloroethane (CFC-113)	<0.22 J	ug/L
		Vinyl acetate	<1.1 J	ug/L
		Vinyl chloride	<0.092 J	ug/L
		Xylenes (total)	<0.31 J	ug/L
		MW18D-GW-121718	1,1,1,2-Tetrachloroethane	<0.20 J
	1,1,1-Trichloroethane		<0.14 J	ug/L
	1,1,2,2-Tetrachloroethane		<0.17 J	ug/L
	1,1,2-Trichloroethane		<0.18 J	ug/L
	1,1-Dichloroethane		<0.17 J	ug/L
	1,1-Dichloroethene		<0.16 J	ug/L
	1,1-Dichloropropene		<0.20 J	ug/L
	1,2,3-Trichlorobenzene		<0.21 J	ug/L
	1,2,3-Trichloropropane		<0.26 J	ug/L
	1,2,4-Trichlorobenzene		<0.20 J	ug/L
	1,2,4-Trimethylbenzene		<0.20 J	ug/L
	1,2-Dibromo-3-chloropropane (DBCP)		<1.7 J	ug/L
	1,2-Dibromoethane (Ethylene dibromide)		<0.24 J	ug/L
	1,2-Dichlorobenzene	<0.14 J	ug/L	
1,2-Dichloroethane	<0.22 J	ug/L		
1,2-Dichloroethene (total)	<0.27 J	ug/L		
1,2-Dichloropropane	<0.16 J	ug/L		
1,3,5-Trimethylbenzene	<0.12 J	ug/L		

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW18D-GW-121718	1,3-Dichlorobenzene	<0.16 J	ug/L
		1,3-Dichloropropane	<0.070 J	ug/L
		1,4-Dichlorobenzene	<0.17 J	ug/L
		1,4-Dioxane	<16.3 J	ug/L
		2,2,4-Trimethylpentane	<0.19 J	ug/L
		2,2-Dichloropropane	<0.17 J	ug/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	ug/L
		2-Chlorotoluene	<0.16 J	ug/L
		2-Hexanone	<0.88 J	ug/L
		2-Phenylbutane (sec-Butylbenzene)	<0.15 J	ug/L
		4-Chlorotoluene	<0.13 J	ug/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	ug/L
		Acetone	<9.2 J	ug/L
		Acrolein	<1.2 J	ug/L
		Acrylonitrile	<0.91 J	ug/L
		Benzene	<0.10 J	ug/L
		Bromobenzene	<0.21 J	ug/L
		Bromodichloromethane	<0.22 J	ug/L
		Bromoform	<0.80 J	ug/L
		Bromomethane (Methyl bromide)	<1.8 J	ug/L
		Carbon disulfide	<0.078 J	ug/L
		Carbon tetrachloride	<0.19 J	ug/L
		Chlorobenzene	<0.17 J	ug/L
		Chlorobromomethane	<0.27 J	ug/L
		Chloroethane	<0.49 J	ug/L
		Chloroform (Trichloromethane)	<0.45 J	ug/L
		Chloromethane (Methyl chloride)	<0.16 J	ug/L
		cis-1,2-Dichloroethene	<0.15 J	ug/L
		cis-1,3-Dichloropropene	<0.20 J	ug/L
		Cymene (p-Isopropyltoluene)	<0.15 J	ug/L
		Dibromochloromethane	<0.12 J	ug/L
		Dibromomethane	<0.16 J	ug/L
		Dichlorodifluoromethane (CFC-12)	<0.23 J	ug/L

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units	
VOCs	MW18D-GW-121718	Dichlorofluoromethane	<0.14 J	ug/L	
		Diisopropyl ether	<0.13 J	ug/L	
		Ethylbenzene	<0.14 J	ug/L	
		Hexachlorobutadiene	<0.31 J	ug/L	
		Isopropyl benzene	<0.18 J	ug/L	
		m&p-Xylenes	<0.31 J	ug/L	
		Methyl tert butyl ether (MTBE)	<0.16 J	ug/L	
		Methylene chloride	<0.98 J	ug/L	
		N-Butylbenzene	<0.24 J	ug/L	
		N-Propylbenzene	<0.10 J	ug/L	
		Naphthalene	<0.48 J	ug/L	
		o-Xylene	<0.16 J	ug/L	
		Styrene	<0.19 J	ug/L	
		tert-Amyl methyl ether	<0.11 J	ug/L	
		tert-Butyl alcohol	<1.2 J	ug/L	
		tert-Butyl ethyl ether	<0.18 J	ug/L	
		tert-Butylbenzene	<0.15 J	ug/L	
		Tetrachloroethene	<0.17 J	ug/L	
		Tetrahydrofuran	<2.2 J	ug/L	
		Toluene	<0.083 J	ug/L	
		trans-1,2-Dichloroethene	<0.12 J	ug/L	
		trans-1,3-Dichloropropene	<0.18 J	ug/L	
		trans-1,4-Dichloro-2-butene	<2.0 J	ug/L	
		Trichloroethene	<0.15 J	ug/L	
		Trichlorofluoromethane (CFC-11)	<0.23 J	ug/L	
		Trifluorotrichloroethane (CFC-113)	<0.22 J	ug/L	
		Vinyl acetate	<1.1 J	ug/L	
	Vinyl chloride	<0.092 J	ug/L		
	Xylenes (total)	<0.31 J	ug/L		
		MW5D-GW-121818	1,1,1,2-Tetrachloroethane	<0.20 J	ug/L
			1,1,1-Trichloroethane	<0.14 J	ug/L
			1,1,2,2-Tetrachloroethane	<0.17 J	ug/L

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW5D-GW-121818	1,1,2-Trichloroethane	<0.18 J	ug/L
		1,1-Dichloroethane	<0.17 J	ug/L
		1,1-Dichloroethene	<0.16 J	ug/L
		1,1-Dichloropropene	<0.20 J	ug/L
		1,2,3-Trichlorobenzene	<0.21 J	ug/L
		1,2,3-Trichloropropane	<0.26 J	ug/L
		1,2,4-Trichlorobenzene	<0.20 J	ug/L
		1,2,4-Trimethylbenzene	<0.20 J	ug/L
		1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	ug/L
		1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	ug/L
		1,2-Dichlorobenzene	<0.14 J	ug/L
		1,2-Dichloroethane	<0.22 J	ug/L
		1,2-Dichloroethene (total)	<0.27 J	ug/L
		1,2-Dichloropropane	<0.16 J	ug/L
		1,3,5-Trimethylbenzene	<0.12 J	ug/L
		1,3-Dichlorobenzene	<0.16 J	ug/L
		1,3-Dichloropropane	<0.070 J	ug/L
		1,4-Dichlorobenzene	<0.17 J	ug/L
		1,4-Dioxane	<16.3 J	ug/L
		2,2,4-Trimethylpentane	<0.19 J	ug/L
		2,2-Dichloropropane	<0.17 J	ug/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	ug/L
		2-Chlorotoluene	<0.16 J	ug/L
		2-Hexanone	<0.88 J	ug/L
		2-Phenylbutane (sec-Butylbenzene)	<0.15 J	ug/L
		4-Chlorotoluene	<0.13 J	ug/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	ug/L
		Acetone	<9.2 J	ug/L
		Acrolein	<1.2 J	ug/L
		Acrylonitrile	<0.91 J	ug/L
Benzene	<0.10 J	ug/L		
Bromobenzene	<0.21 J	ug/L		
Bromodichloromethane	<0.22 J	ug/L		

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW5D-GW-121818	Bromoform	<0.80 J	ug/L
		Bromomethane (Methyl bromide)	<1.8 J	ug/L
		Carbon disulfide	<0.078 J	ug/L
		Carbon tetrachloride	<0.19 J	ug/L
		Chlorobenzene	<0.17 J	ug/L
		Chlorobromomethane	<0.27 J	ug/L
		Chloroethane	<0.49 J	ug/L
		Chloroform (Trichloromethane)	<0.45 J	ug/L
		Chloromethane (Methyl chloride)	<0.16 J	ug/L
		cis-1,2-Dichloroethene	<0.15 J	ug/L
		cis-1,3-Dichloropropene	<0.20 J	ug/L
		Cymene (p-Isopropyltoluene)	<0.15 J	ug/L
		Dibromochloromethane	<0.12 J	ug/L
		Dibromomethane	<0.16 J	ug/L
		Dichlorodifluoromethane (CFC-12)	<0.23 J	ug/L
		Dichlorofluoromethane	<0.14 J	ug/L
		Diisopropyl ether	<0.13 J	ug/L
		Ethylbenzene	<0.14 J	ug/L
		Hexachlorobutadiene	<0.31 J	ug/L
		Isopropyl benzene	<0.18 J	ug/L
		m&p-Xylenes	<0.31 J	ug/L
		Methyl tert butyl ether (MTBE)	<0.16 J	ug/L
		Methylene chloride	<0.98 J	ug/L
		N-Butylbenzene	<0.24 J	ug/L
		N-Propylbenzene	<0.10 J	ug/L
		Naphthalene	<0.48 J	ug/L
		o-Xylene	<0.16 J	ug/L
		Styrene	<0.19 J	ug/L
		tert-Amyl methyl ether	<0.11 J	ug/L
		tert-Butyl alcohol	<1.2 J	ug/L
		tert-Butyl ethyl ether	<0.18 J	ug/L
		tert-Butylbenzene	<0.15 J	ug/L
		Tetrachloroethene	<0.17 J	ug/L

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW5D-GW-121818	Tetrahydrofuran	<2.2 J	ug/L
		Toluene	<0.083 J	ug/L
		trans-1,2-Dichloroethene	<0.12 J	ug/L
		trans-1,3-Dichloropropene	<0.18 J	ug/L
		trans-1,4-Dichloro-2-butene	<2.0 J	ug/L
		Trichloroethene	<0.15 J	ug/L
		Trichlorofluoromethane (CFC-11)	<0.23 J	ug/L
		Trifluorotrichloroethane (CFC-113)	<0.22 J	ug/L
		Vinyl acetate	<1.1 J	ug/L
		Vinyl chloride	<0.092 J	ug/L
	Xylenes (total)	<0.31 J	ug/L	
	AtwoodS-GW-010419	1,1,1,2-Tetrachloroethane	<0.20 J	ug/L
		1,1,1-Trichloroethane	<0.14 J	ug/L
		1,1,2,2-Tetrachloroethane	<0.17 J	ug/L
		1,1,2-Trichloroethane	<0.18 J	ug/L
		1,1-Dichloroethane	<0.17 J	ug/L
		1,1-Dichloroethene	<0.16 J	ug/L
		1,1-Dichloropropene	<0.20 J	ug/L
		1,2,3-Trichlorobenzene	<0.21 J	ug/L
		1,2,3-Trichloropropane	<0.26 J	ug/L
1,2,4-Trichlorobenzene		<0.20 J	ug/L	
1,2,4-Trimethylbenzene	<0.20 J	ug/L		
1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	ug/L		
1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	ug/L		
1,2-Dichlorobenzene	<0.14 J	ug/L		
1,2-Dichloroethane	<0.22 J	ug/L		
1,2-Dichloroethene (total)	<0.27 J	ug/L		
1,2-Dichloropropane	<0.16 J	ug/L		
1,3,5-Trimethylbenzene	<0.12 J	ug/L		
1,3-Dichlorobenzene	<0.16 J	ug/L		
1,3-Dichloropropane	<0.070 J	ug/L		
1,4-Dichlorobenzene	<0.17 J	ug/L		

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	AtwoodS-GW-010419	1,4-Dioxane	<16.3 J	ug/L
		2,2,4-Trimethylpentane	<0.19 J	ug/L
		2,2-Dichloropropane	<0.17 J	ug/L
		2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	ug/L
		2-Chlorotoluene	<0.16 J	ug/L
		2-Hexanone	<0.88 J	ug/L
		2-Phenylbutane (sec-Butylbenzene)	<0.15 J	ug/L
		4-Chlorotoluene	<0.13 J	ug/L
		4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	ug/L
		Acetone	<9.2 J	ug/L
		Acrolein	<1.2 J	ug/L
		Acrylonitrile	<0.91 J	ug/L
		Benzene	<0.10 J	ug/L
		Bromobenzene	<0.21 J	ug/L
		Bromodichloromethane	<0.22 J	ug/L
		Bromoform	<0.80 J	ug/L
		Bromomethane (Methyl bromide)	<1.8 J	ug/L
		Carbon disulfide	<0.078 J	ug/L
		Carbon tetrachloride	<0.19 J	ug/L
		Chlorobenzene	<0.17 J	ug/L
		Chlorobromomethane	<0.27 J	ug/L
		Chloroethane	<0.49 J	ug/L
		Chloroform (Trichloromethane)	<0.45 J	ug/L
		Chloromethane (Methyl chloride)	<0.16 J	ug/L
		cis-1,2-Dichloroethene	<0.15 J	ug/L
		cis-1,3-Dichloropropene	<0.20 J	ug/L
		Cymene (p-Isopropyltoluene)	<0.15 J	ug/L
		Dibromochloromethane	<0.12 J	ug/L
		Dibromomethane	<0.16 J	ug/L
		Dichlorodifluoromethane (CFC-12)	<0.23 J	ug/L
		Dichlorofluoromethane	<0.14 J	ug/L
		Diisopropyl ether	<0.13 J	ug/L
		Ethylbenzene	<0.14 J	ug/L

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	AtwoodS-GW-010419	Hexachlorobutadiene	<0.31 J	ug/L
		Isopropyl benzene	<0.18 J	ug/L
		m&p-Xylenes	<0.31 J	ug/L
		Methyl tert butyl ether (MTBE)	<0.16 J	ug/L
		Methylene chloride	<0.98 J	ug/L
		N-Butylbenzene	<0.24 J	ug/L
		N-Propylbenzene	<0.10 J	ug/L
		Naphthalene	<0.48 J	ug/L
		o-Xylene	<0.16 J	ug/L
		Styrene	<0.19 J	ug/L
		tert-Amyl methyl ether	<0.11 J	ug/L
		tert-Butyl alcohol	<1.2 J	ug/L
		tert-Butyl ethyl ether	<0.18 J	ug/L
		tert-Butylbenzene	<0.15 J	ug/L
		Tetrachloroethene	<0.17 J	ug/L
		Tetrahydrofuran	<2.2 J	ug/L
		Toluene	<0.083 J	ug/L
		trans-1,2-Dichloroethene	<0.12 J	ug/L
		trans-1,3-Dichloropropene	<0.18 J	ug/L
		trans-1,4-Dichloro-2-butene	<2.0 J	ug/L
		Trichloroethene	<0.15 J	ug/L
		Trichlorofluoromethane (CFC-11)	<0.23 J	ug/L
		Trifluorotrchloroethane (CFC-113)	<0.22 J	ug/L
		Vinyl acetate	<1.1 J	ug/L
		Vinyl chloride	<0.092 J	ug/L
		Xylenes (total)	<0.31 J	ug/L

Notes:

<() J - Not detected; associated reporting limit is estimated

VOCs - Volatile Organic Compounds

Table 6

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	Chloromethane (Methyl chloride)	01/21/2019	0.24 J	Randall-GW-010719	0.19 J	<0.24 J	ug/L
Metals	Zinc (dissolved)	12/27/2018	103	MW6U-GW-121718	9.9 J	<103	ug/L
	Manganese (dissolved)	01/02/2019	0.22 J	MW6D-GW-121718	0.84 J	<0.84 J	ug/L
01/15/2019				0.35 J	Silva-GW-010419	0.47 J	<0.47 J
Stark-GW-010419		1.6 J	<1.6 J	ug/L			
AtwoodS-GW-010419		4.1 J	<4.1 J	ug/L			
Asher-GW-010719		0.31 J	<0.35 J	ug/L			
Marlow-GW-010719		0.70 J	<0.70 J	ug/L			
Randall-GW-010719		0.97 J	<0.97 J	ug/L			
Reed-GW-010719		3.3 J	<3.3 J	ug/L			
		01/21/2019	0.64 J	MW20D-GW-011519	4.3 J	<4.3 J	ug/L
General Chemistry	Chloride	12/27/2018	0.28 J	MW10s-GW-122018	0.71 J	<0.71 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- < - Not detected at the associated reporting limit
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 - January 2019**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Results	Units
VOCs	2,2,4-Trimethylpentane	12/24/2018	63	64-130	MW8S-GW-122018	<0.19 J	ug/L
					MW7S-GW-122018	<0.19 J	ug/L
					MW1S-GW-122018	<0.19 J	ug/L
					MW24s-GW-122118	<0.19 J	ug/L
					MW25s-GW-122118	<0.19 J	ug/L
					MW9s-GW-122118	<0.19 J	ug/L
					MW1D-GW-122118	<0.19 J	ug/L
					MW2D-GW-122118	<0.19 J	ug/L
					FD4-GW-122118	<0.19 J	ug/L
	FD5-GW-122118	<0.19 J	ug/L				
	Carbon disulfide	12/24/2018	57	67-125	MW8S-GW-122018	<0.078 J	ug/L
					MW7S-GW-122018	<0.078 J	ug/L
					MW1S-GW-122018	<0.078 J	ug/L
					MW24s-GW-122118	<0.078 J	ug/L
					MW25s-GW-122118	<0.078 J	ug/L
					MW9s-GW-122118	<0.078 J	ug/L
					MW1D-GW-122118	<0.078 J	ug/L
					MW2D-GW-122118	<0.078 J	ug/L
					FD4-GW-122118	<0.078 J	ug/L
	FD5-GW-122118	<0.078 J	ug/L				
	tert-Butyl ethyl ether	12/24/2018	74	75-125	MW8S-GW-122018	<0.18 J	ug/L
					MW7S-GW-122018	<0.18 J	ug/L
					MW1S-GW-122018	<0.18 J	ug/L
					MW24s-GW-122118	<0.18 J	ug/L
					MW25s-GW-122118	<0.18 J	ug/L
					MW9s-GW-122118	<0.18 J	ug/L
					MW1D-GW-122118	<0.18 J	ug/L
MW2D-GW-122118					<0.18 J	ug/L	
FD4-GW-122118					<0.18 J	ug/L	
FD5-GW-122118	<0.18 J	ug/L					

Table 7

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 - January 2019**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Results	Units
VOCs	2,2,4-Trimethylpentane	12/26/2018	63	64-130	MW12s-GW-122018	<0.19 J	ug/L
					MW10s-GW-122018	<0.19 J	ug/L
					MW11s-GW-122018	<0.19 J	ug/L
					MW6s-GW-122018	<0.19 J	ug/L
	Carbon disulfide	12/26/2018	65	67-125	MW12s-GW-122018	<0.078 J	ug/L
					MW10s-GW-122018	<0.078 J	ug/L
					MW11s-GW-122018	<0.078 J	ug/L
					MW6s-GW-122018	<0.078 J	ug/L
		1/21/2019	44	47-137	Asher-GW-010719	<0.078 J	ug/L
					Marlow-GW-010719	0.52 J	ug/L
					Randall-GW-010719	0.76 J	ug/L
					Reed-GW-010719	<0.078 J	ug/L

Notes:

- LCS - Laboratory Control Sample
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units						
						% Recovery	RPD									
General Chemistry	MW6U-GW-121718	Chloride	84	85	0	90-110	20	MW21D-GW-121718	2.6 J	mg/L						
								MW16D-GW-121718	5.9 J	mg/L						
								MW18D-GW-121718	2.4 J	mg/L						
								MW15D-GW-121718	3.1 J	mg/L						
								MW6U-GW-121718	8.4 J	mg/L						
								MW6D-GW-121718	3.7 J	mg/L						
	MW15D-GW-121718 MW6U-GW-121718	Nitrate (as N) Nitrate (as N)	66 66	64 68	1 1	90-110 90-110	20 20	MW21D-GW-121718	<0.015 J	mg/L						
								MW16D-GW-121718	5.8 J	mg/L						
								MW18D-GW-121718	<0.015 J	mg/L						
								MW15D-GW-121718	2.1 J	mg/L						
								MW6U-GW-121718	1.8 J	mg/L						
								MW6D-GW-121718	0.68 J	mg/L						
	MW16D-GW-121718 MW6U-GW-121718	Sulfate Sulfate	77 87	80 88	1 1	90-110 90-110	20 20	MW21D-GW-121718	7.6 J	mg/L						
								MW16D-GW-121718	18.5 J	mg/L						
								MW18D-GW-121718	8.3 J	mg/L						
								MW15D-GW-121718	6.3 J	mg/L						
								MW6U-GW-121718	7.3 J	mg/L						
								MW6D-GW-121718	5.5 J	mg/L						
	Freeman Primary-GW-121918	Nitrate (as N)	78	79	1	90-110	20	Freeman Primary-GW-121918	1.3 J	mg/L						
	MW24s-GW-122118	Chloride	80	79	0	90-110	20	MW12s-GW-122018	43.8 J	mg/L						
								MW10s-GW-122018	<0.71 J	mg/L						
								MW11s-GW-122018	1.2 J	mg/L						
								MW6s-GW-122018	1.6 J	mg/L						
								MW24s-GW-122118	382 J	mg/L						
								MW25s-GW-122118	59.8 J	mg/L						
								MW9s-GW-122118	228 J	mg/L						
MW1D-GW-122118								1.9 J	mg/L							
MW2D-GW-122118								1.6 J	mg/L							
FD4-GW-122118								286 J	mg/L							
FD5-GW-122118								1.7 J	mg/L							
MW25s-GW-122118								Nitrate (as N)	57	57	0	90-110	20	MW12s-GW-122018	7.2 J	mg/L
														MW10s-GW-122018	0.19 J	mg/L
	MW11s-GW-122018	0.063 J	mg/L													
	MW6s-GW-122018	0.17 J	mg/L													
	MW24s-GW-122118	0.12 J	mg/L													
	MW25s-GW-122118	2.8 J	mg/L													
MW9s-GW-122118	10.5 J	mg/L														

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	MW25s-GW-122118	Nitrate (as N)	57	57	0	90-110	20	MW1D-GW-122118	0.12 J	mg/L
								MW2D-GW-122118	0.067 J	mg/L
								FD4-GW-122118	9.0 J	mg/L
								FD5-GW-122118	0.070 J	mg/L
	MW25s-GW-122118	Sulfate	49	49	0	90-110	20	MW12s-GW-122018	44.8 J	mg/L
								MW10s-GW-122018	2.0 J	mg/L
								MW11s-GW-122018	3.3 J	mg/L
								MW6s-GW-122018	1.8 J	mg/L
								MW24s-GW-122118	53.2 J	mg/L
								MW25s-GW-122118	38.9 J	mg/L
								MW9s-GW-122118	66.5 J	mg/L
								MW1D-GW-122118	4.0 J	mg/L
								MW2D-GW-122118	1.6 J	mg/L
								FD4-GW-122118	61.4 J	mg/L
								FD5-GW-122118	1.6 J	mg/L
								Silva-GW-010419	Nitrate (as N)	58
	Stark-GW-010419	Nitrate (as N)	89	86	1	90-120	20	Stark-GW-010419	14.7 J	mg/L
								AtwoodH-GW-010419	0.46 J	mg/L
								AtwoodS-GW-010419	1.3 J	mg/L
								Thorson-GW-010719	<0.015 J	mg/L
Asher-GW-010719								7.4 J	mg/L	
Marlow-GW-010719								4.5 J	mg/L	
Randall-GW-010719								2.2 J	mg/L	
Reed-GW-010719								0.28 J	mg/L	
Stark-GW-010419	Sulfate	88	89	0	90-120	20	Silva-GW-010419	10.9 J	mg/L	
							Stark-GW-010419	10.5 J	mg/L	
							AtwoodH-GW-010419	4.2 J	mg/L	
							AtwoodS-GW-010419	4.8 J	mg/L	
							Thorson-GW-010719	2.9 J	mg/L	
							Asher-GW-010719	24.2 J	mg/L	
							Marlow-GW-010719	14.6 J	mg/L	
							Randall-GW-010719	9.5 J	mg/L	
Reed-GW-010719	7.4 J	mg/L								

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	MW14D-GW-011419	Nitrate (as N)	85	84	1	90-110	20	MW14D-GW-011419	0.072 J	mg/L
	MW20D-GW-011519	Nitrate (as N)	76	78	1	90-110	20	MW19D-GW-011419 MW20D-GW-011519 MW4D-GW-011519 Lang-GW-011519	4.5 J 1.2 J 0.86 J 0.45 J	mg/L mg/L mg/L mg/L
	MW13s-GW-011019	Nitrite/Nitrate	112	113	1	90-110	20	MW13s-GW-011019 W26-GW-011019 No2-GW-011019 MW20D-GW-011519 MW4D-GW-011519	0.39 J 2.0 J 1.6 J 1.3 J 1.0 J	mg/L mg/L mg/L mg/L mg/L
	MW15D-GW-121718	Sulfide	10	--	--	75-125	--	MW21D-GW-121718	R	
	MW6U-GW-121718	Sulfide	4	--	--	75-125	--	MW16D-GW-121718 MW18D-GW-121718 MW15D-GW-121718 MW6U-GW-121718 MW6D-GW-121718 MW5D-GW-121818 MW17D-GW-121818 MW3D-GW-121818 MW9D-GW-121818 MW9U-GW-121818 FD1-GW-121818 FD2-GW-121818 FD3-GW-121818	R R R R R R R R 0.011 J R 0.0058 J R R R	mg/L mg/L
	MW14D-GW-011419	Sulfide	28	--	--	75-125	--	MW14D-GW-011419 MW19D-GW-011419	R R	
	MW20D-GW-011519	Sulfide	15	--	--	75-125	--	MW20D-GW-011519 MW4D-GW-011519 Lang-GW-011519	R R R	

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 9

**Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2018 - January 2019**

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	1/15/2019	Toluene	0.17 J	MW4D-GW-011519	0.15 J	<0.17 J	ug/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 10

**Qualified Sample Data Due to Variability in Field Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2018 - January 2019**

Parameter	Analyte	RPD	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
Metals	Zinc (dissolved)	194.2	MW3D-GW-121818	171 J	FD1-GW-121818	<2.5 J	ug/L
General Chemistry	Alkalinity, total (as CaCO ₃)	58.7	MW9s-GW-122118	154 J	FD4-GW-122118	84.1 J	mg/L

Notes:

- RPD - Relative Percent Difference (i.e., >50% for waters/air or >100% for soils)
 J - Estimated concentration
 <() J - Not detected; associated reporting limit is estimated



Memorandum

March 18, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/191-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10465801
Silo Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
February 2019**

1. Introduction

This document details a reduced validation of analytical results for soil samples collected in support of the Silo Sampling at the Cenex Harvest Lease Site in Freeman, Washington during February 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of benzene present at a low concentration. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy.



6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

All soil results were reported on a dry weight basis.

9. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

Sample Collection and Analysis Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters		Comments
							Moisture	VOCs	
HB-1-1-022619	HB-1-1	Soil	10	10.5	02/26/2019	10:30	X	X	
HB-1-2-022619	HB-1-2	Soil	10	10.5	02/26/2019	12:15	X	X	
HB-1-3-022619	HB-1-3	Soil	10	10.5	02/26/2019	14:30	X	X	
HB-2-1-022719	HB-2-1	Soil	10	10.5	02/27/2019	12:00	X	X	
HB-2-2-022719	HB-2-2	Soil	10	10.5	02/27/2019	13:00	X	X	
HB-2-3-022719	HB-2-3	Soil	10	10.5	02/27/2019	14:15	X	X	
HB-3-1-022819	HB-3-1	Soil	10	10.5	02/28/2019	11:00	X	X	
HB-3-2-022819	HB-3-2	Soil	10	10.5	02/28/2019	12:15	X	X	
Dup-01-022819	HB-3-2	Soil	10	10.5	02/28/2019	12:00	X	X	FD (HB-3-2-022819)
HB-3-3-022819	HB-3-3	Soil	10	10.5	02/28/2019	14:30	X	X	
Trip Blank	--	Soil	--	--	02/28/2019	--		X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
 FD - Field Duplicate sample of sample in parenthesis
 VOCs - Volatile Organic Compounds
 "--" - Not Applicable

Table 2

**Analytical Methods
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Soil
Moisture	ASTM D2974 ⁽²⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11

Table 3

Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

	Location ID:	HB-1-1	HB-1-2	HB-1-3	HB-2-1	HB-2-2
	Sample Name:	HB-1-1-022619	HB-1-2-022619	HB-1-3-022619	HB-2-1-022719	HB-2-2-022719
	Sample Date:	02/26/2019	02/26/2019	02/26/2019	02/27/2019	02/27/2019
	Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1-Trichloroethane	mg/kg	<0.027	<0.029	<0.028	<0.028	<0.027
1,1,1,2-Tetrachloroethane	mg/kg	<0.010	<0.011	<0.010	<0.010	<0.010
1,1,2-Trichloroethane	mg/kg	<0.0069	<0.0074	<0.0071	<0.0071	<0.0069
1,1-Dichloroethane	mg/kg	<0.0064	<0.0069	<0.0067	<0.0067	<0.0065
1,1-Dichloroethene	mg/kg	<0.017	<0.019	<0.018	<0.018	<0.017
1,2,4-Trichlorobenzene	mg/kg	<0.013	<0.014	<0.013	<0.013	<0.013
1,2,4-Trimethylbenzene	mg/kg	<0.011	<0.012	<0.012	<0.012	<0.012
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0060	<0.0065	<0.0063	<0.0062	<0.0061
1,2-Dichlorobenzene	mg/kg	<0.0023	<0.0025	<0.0024	<0.0024	<0.0023
1,2-Dichloroethane	mg/kg	<0.0063	<0.0068	<0.0065	<0.0065	<0.0064
1,3,5-Trimethylbenzene	mg/kg	<0.0091	<0.0098	<0.0095	<0.0095	<0.0092
1,3-Dichlorobenzene	mg/kg	<0.0021	<0.0022	<0.0022	<0.0022	<0.0021
1,4-Dichlorobenzene	mg/kg	<0.0036	<0.0038	<0.0037	<0.0037	<0.0036
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.030	<0.033	<0.032	<0.032	<0.031
2-Hexanone	mg/kg	<0.013	<0.014	<0.014	<0.014	<0.013
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.012	<0.013	<0.012	<0.012	<0.012
Acetone	mg/kg	<0.36	<0.38	<0.37	<0.37	<0.36
Benzene	mg/kg	<0.0032	<0.0035	<0.0034	<0.0033	<0.0033
Bromodichloromethane	mg/kg	<0.020	<0.021	<0.020	<0.020	<0.020
Bromoform	mg/kg	<0.087	<0.093	<0.090	<0.090	<0.088
Bromomethane (Methyl bromide)	mg/kg	<0.067	<0.072	<0.070	<0.069	<0.068
Carbon tetrachloride	mg/kg	<0.027	0.063 J	<0.028	<0.028	<0.028

Table 3
Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

	Location ID:	HB-1-1	HB-1-2	HB-1-3	HB-2-1	HB-2-2
	Sample Name:	HB-1-1-022619	HB-1-2-022619	HB-1-3-022619	HB-2-1-022719	HB-2-2-022719
	Sample Date:	02/26/2019	02/26/2019	02/26/2019	02/27/2019	02/27/2019
	Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Chlorobenzene	mg/kg	<0.0032	<0.0035	<0.0034	<0.0033	<0.0033
Chloroethane	mg/kg	<0.030	<0.032	<0.031	<0.031	<0.030
Chloroform (Trichloromethane)	mg/kg	<0.029	0.34	<0.030	<0.030	<0.029
Chloromethane (Methyl chloride)	mg/kg	<0.014	<0.015	<0.014	<0.014	<0.014
cis-1,2-Dichloroethene	mg/kg	<0.0095	<0.010	<0.0099	<0.0098	<0.0096
cis-1,3-Dichloropropene	mg/kg	<0.0082	<0.0088	<0.0085	<0.0085	<0.0083
Dibromochloromethane	mg/kg	<0.0066	<0.0072	<0.0069	<0.0069	<0.0067
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.019	<0.020	<0.019	<0.019	<0.019
Ethylbenzene	mg/kg	<0.0031	<0.0034	<0.0032	<0.0032	<0.0032
Hexachlorobutadiene	mg/kg	<0.014	<0.015	<0.015	<0.014	<0.014
m&p-Xylenes	mg/kg	<0.0071	<0.0076	<0.0074	<0.0073	<0.0072
Methyl tert butyl ether (MTBE)	mg/kg	<0.0068	<0.0073	<0.0071	<0.0071	<0.0069
Methylene chloride	mg/kg	<0.11	<0.12	<0.11	<0.11	<0.11
Naphthalene	mg/kg	<0.054	<0.058	<0.056	<0.056	<0.054
o-Xylene	mg/kg	<0.013	<0.014	<0.014	<0.014	<0.013
Styrene	mg/kg	<0.0026	<0.0028	<0.0027	<0.0027	<0.0026
Tetrachloroethene	mg/kg	<0.020	<0.022	<0.021	<0.021	<0.020
Tetrahydrofuran	mg/kg	<0.083	<0.090	<0.087	<0.086	<0.084
Toluene	mg/kg	<0.014	<0.015	<0.015	<0.014	<0.014
trans-1,2-Dichloroethene	mg/kg	<0.027	<0.029	<0.028	<0.028	<0.027
trans-1,3-Dichloropropene	mg/kg	<0.0080	<0.0086	<0.0083	<0.0082	<0.0081
Trichloroethene	mg/kg	<0.0088	<0.0095	<0.0092	<0.0091	<0.0089

Table 3
Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

Location ID:	HB-1-1	HB-1-2	HB-1-3	HB-2-1	HB-2-2
Sample Name:	HB-1-1-022619	HB-1-2-022619	HB-1-3-022619	HB-2-1-022719	HB-2-2-022719
Sample Date:	02/26/2019	02/26/2019	02/26/2019	02/27/2019	02/27/2019
Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Parameters	Unit	HB-1-1	HB-1-2	HB-1-3	HB-2-1	HB-2-2
Trichlorofluoromethane (CFC-11)	mg/kg	<0.10	<0.11	<0.10	<0.10	<0.10
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.066	<0.072	<0.069	<0.069	<0.067
Vinyl acetate	mg/kg	<0.0066	<0.0071	<0.0069	<0.0069	<0.0067
Vinyl chloride	mg/kg	<0.011	<0.012	<0.012	<0.012	<0.011

General Chemistry

Parameters	Unit	HB-1-1	HB-1-2	HB-1-3	HB-2-1	HB-2-2
Percent moisture	%	16.0	16.5	18.3	19.3	16.3

Table 3
Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

	Location ID:	HB-2-3	HB-3-1	HB-3-2	HB-3-2	HB-3-3
	Sample Name:	HB-2-3-022719	HB-3-1-022819	HB-3-2-022819	Dup-01-022819	HB-3-3-022819
	Sample Date:	02/27/2019	02/28/2019	02/28/2019	02/28/2019	02/28/2019
	Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs Duplicate	10-10.5 ft bgs
Parameters	Unit					
Volatile Organic Compounds						
1,1,1-Trichloroethane	mg/kg	<0.029	<0.028	<0.027	<0.029	<0.029
1,1,2,2-Tetrachloroethane	mg/kg	<0.011	<0.010	<0.010	<0.011	<0.011
1,1,2-Trichloroethane	mg/kg	<0.0075	<0.0071	<0.0070	<0.0074	<0.0075
1,1-Dichloroethane	mg/kg	<0.0070	<0.0066	<0.0066	<0.0070	<0.0070
1,1-Dichloroethene	mg/kg	<0.019	<0.018	<0.018	<0.019	<0.019
1,2,4-Trichlorobenzene	mg/kg	<0.014	<0.013	<0.013	<0.014	<0.014
1,2,4-Trimethylbenzene	mg/kg	<0.013	<0.012	<0.012	<0.012	<0.013
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0066	<0.0062	<0.0062	<0.0065	<0.0066
1,2-Dichlorobenzene	mg/kg	<0.0025	<0.0024	<0.0024	<0.0025	<0.0025
1,2-Dichloroethane	mg/kg	<0.0069	<0.0065	<0.0065	<0.0068	<0.0069
1,3,5-Trimethylbenzene	mg/kg	<0.010	<0.0094	<0.0094	<0.0099	<0.010
1,3-Dichlorobenzene	mg/kg	<0.0023	<0.0021	<0.0021	<0.0023	<0.0023
1,4-Dichlorobenzene	mg/kg	<0.0039	<0.0037	<0.0036	<0.0039	<0.0039
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.033	<0.031	<0.031	<0.033	<0.033
2-Hexanone	mg/kg	<0.014	<0.014	<0.014	<0.014	<0.014
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.013	<0.012	<0.012	<0.013	<0.013
Acetone	mg/kg	<0.39	<0.37	<0.37	<0.39	<0.39
Benzene	mg/kg	<0.0035	<0.0033	<0.0033	<0.0035	<0.0051 J
Bromodichloromethane	mg/kg	<0.021	<0.020	<0.020	<0.021	<0.021
Bromoform	mg/kg	<0.095	<0.089	<0.089	<0.094	<0.095
Bromomethane (Methyl bromide)	mg/kg	<0.073	<0.069	<0.069	<0.073	<0.073
Carbon tetrachloride	mg/kg	<0.030	<0.028	<0.028	<0.030	<0.030

Table 3
Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

	Location ID:	HB-2-3	HB-3-1	HB-3-2	HB-3-2	HB-3-3
	Sample Name:	HB-2-3-022719	HB-3-1-022819	HB-3-2-022819	Dup-01-022819	HB-3-3-022819
	Sample Date:	02/27/2019	02/28/2019	02/28/2019	02/28/2019	02/28/2019
	Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs Duplicate	10-10.5 ft bgs
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Chlorobenzene	mg/kg	<0.0035	<0.0033	<0.0033	<0.0035	<0.0035
Chloroethane	mg/kg	<0.033	<0.031	<0.031	<0.032	<0.033
Chloroform (Trichloromethane)	mg/kg	<0.031	<0.030	<0.029	<0.031	<0.031
Chloromethane (Methyl chloride)	mg/kg	<0.015	<0.014	<0.014	<0.015	<0.015
cis-1,2-Dichloroethene	mg/kg	<0.010	<0.0098	<0.0097	<0.010	<0.010
cis-1,3-Dichloropropene	mg/kg	<0.0090	<0.0085	<0.0084	<0.0089	<0.0090
Dibromochloromethane	mg/kg	<0.0073	<0.0068	<0.0068	<0.0072	<0.0073
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.020	<0.019	<0.019	<0.020	<0.020
Ethylbenzene	mg/kg	<0.0034	<0.0032	<0.0032	<0.0034	<0.0034
Hexachlorobutadiene	mg/kg	<0.015	<0.014	<0.014	<0.015	<0.015
m&p-Xylenes	mg/kg	<0.0077	<0.0073	<0.0073	<0.0077	<0.0077
Methyl tert butyl ether (MTBE)	mg/kg	<0.0074	<0.0070	<0.0070	<0.0074	<0.0074
Methylene chloride	mg/kg	<0.12	<0.11	<0.11	<0.12	<0.12
Naphthalene	mg/kg	<0.059	<0.055	<0.055	<0.058	<0.059
o-Xylene	mg/kg	<0.015	<0.014	<0.014	<0.014	<0.015
Styrene	mg/kg	<0.0029	<0.0027	<0.0027	<0.0028	<0.0029
Tetrachloroethene	mg/kg	<0.022	<0.021	<0.021	<0.022	<0.022
Tetrahydrofuran	mg/kg	<0.091	<0.086	<0.085	<0.090	<0.091
Toluene	mg/kg	<0.015	<0.014	<0.014	<0.015	<0.015
trans-1,2-Dichloroethene	mg/kg	<0.029	<0.028	<0.028	<0.029	<0.029
trans-1,3-Dichloropropene	mg/kg	<0.0087	<0.0082	<0.0082	<0.0087	<0.0087
Trichloroethene	mg/kg	<0.0097	<0.0091	<0.0091	<0.0096	<0.0096

Table 3
Analytical Results Summary
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

Location ID:	HB-2-3	HB-3-1	HB-3-2	HB-3-2	HB-3-3
Sample Name:	HB-2-3-022719	HB-3-1-022819	HB-3-2-022819	Dup-01-022819	HB-3-3-022819
Sample Date:	02/27/2019	02/28/2019	02/28/2019	02/28/2019	02/28/2019
Depth:	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs	10-10.5 ft bgs Duplicate	10-10.5 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Parameters	Unit	HB-2-3	HB-3-1	HB-3-2	HB-3-2	HB-3-3
Trichlorofluoromethane (CFC-11)	mg/kg	<0.11	<0.10	<0.10	<0.11	<0.11
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.073	<0.068	<0.068	<0.072	<0.073
Vinyl acetate	mg/kg	<0.0072	<0.0068	<0.0068	<0.0072	<0.0072
Vinyl chloride	mg/kg	<0.012	<0.012	<0.012	<0.012	<0.012

General Chemistry

Parameters	Unit	HB-2-3	HB-3-1	HB-3-2	HB-3-2	HB-3-3
Percent moisture	%	16.9	17.5	17.3	17.1	17.4

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Silo Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
February 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	Benzene	03/06/2019	0.0054 J	HB-3-3-022819	0.0051 J	<0.0054 J	mg/kg

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

April 16, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/220-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10466793, 10466924, 10467061, 10467228, 10467464, 10467602, 10467607, 10467608, 10467822, 10467825, 10467826, 10467827, 10467828, 10467830, 10467831, 10467832, 10467833 and 10467835
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
March 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during March 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with two exceptions. Where a high carbon disulfide recovery was found the associated sample results were non-detect and were not impacted. Where a low 1,2-dichloroethane recovery was found the associated sample results were qualified as estimated due to the implied low bias (see Table 5).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a high ethane RPD. The associated sample result was non-detect and was not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where a high chemical oxygen demand (COD) RPD was found the associated sample result was non-detect and was not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 6).

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.



The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias. Where an extremely low sulfide recovery was found the associated sample detection was qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated (see Table 6).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the exception of a few high RPDs. The associated non-detect results were not impacted and the associated sample detections were qualified as estimated due to variability (see Table 7).

9. Field QA/QC Samples

The field QA/QC consisted of eight trip blank samples and five field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, eight trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of toluene present at a low concentration. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 8).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.



11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Asher-GW-032119	Asher Well	Water	03/21/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Atwood-GW-032119	Atwood House	Water	03/21/2019	11:10	X	X	X	X	X	X	X	X	X	X	X	
AtwoodShop-GW-032119	Atwood Shop	Water	03/21/2019	11:15	X	X	X	X	X	X	X	X	X			
AtwoodShop-GW-032119	Atwood Shop	Water	03/21/2019	11:20											X	
Lang-GW-032119	Lang Well	Water	03/21/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	
Lashaw-GW-032119	Lashaw Well	Water	03/21/2019	09:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Marlow-GW-032119	Marlow Well	Water	03/21/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	
No.2-GW-032019	Out-of-Use Marlow Well (No. 2)	Water	03/20/2019	11:20	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW1D-GW-031819	MW-1D	Water	03/18/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	
MW1S-GW-031319	MW-1S	Water	03/13/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	
MW2D-GW-031819	MW-2D	Water	03/18/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW3D-GW-031519	MW-3D	Water	03/15/2019	11:15	X	X	X	X	X	X	X	X	X	X	X	
FD3-GW-031519	MW-3D	Water	03/15/2019	11:20	X	X	X	X	X	X	X	X	X	X	X	FD (MW3D-GW-031519)
MW4D-GW-031919	MW-4D	Water	03/19/2019	14:25	X	X	X	X	X	X	X	X	X	X	X	
MW5D-GW-031819	MW-5D	Water	03/18/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW6D-GW-031419	MW-6D	Water	03/14/2019	16:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6S-GW-031319	MW-6S	Water	03/13/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	
MW6U-GW-031419	MW-6U	Water	03/14/2019	14:45	X	X	X	X	X	X	X	X	X	X	X	
MW7S-GW-031319	MW-7S	Water	03/13/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	
MW8S-GW-031319	MW-8S	Water	03/13/2019	12:30	X	X	X	X	X	X	X	X	X	X	X	
MW9D-GW-031519	MW-9D	Water	03/15/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD2-GW-031519	MW-9D	Water	03/15/2019	10:20	X	X	X	X	X	X	X	X	X	X	X	FD (MW9D-GW-031519)
MW9S-GW-031319	MW-9S	Water	03/13/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9U-GW-031519	MW-9U	Water	03/15/2019	09:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
FD1-GW-031519	MW-9U	Water	03/15/2019	09:05	X	X	X	X	X	X	X	X	X	X	X	FD (MW9U-GW-031519)
MW10S-GW-031319	MW-10S	Water	03/13/2019	14:00	X	X	X	X	X	X	X	X	X	X	X	DUP
MW11S-GW-031319	MW-11S	Water	03/13/2019	10:30	X	X	X	X	X	X	X	X	X	X	X	MS - MS/MSD
MW12S-GW-031319	MW-12S	Water	03/13/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	
MW13S-GW-031919	MW-13S	Water	03/19/2019	16:15	X	X	X	X	X	X	X	X	X	X	X	
MW14D-GW-031819	MW-14D	Water	03/18/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW15D-GW-031419	MW-15D	Water	03/14/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW16D-GW-031919	MW-16D	Water	03/19/2019	09:20	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW17D-GW-032019	MW-17D	Water	03/20/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	
FD4-GW-032019	MW-17D	Water	03/20/2019	13:05	X	X	X	X	X	X	X	X	X	X	X	FD (MW17D-GW-032019)
MW18D-GW-031919	MW-18D	Water	03/19/2019	10:35	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW19D-GW-032019	MW-19D	Water	03/20/2019	14:45	X	X	X	X	X	X	X	X	X	X	X	
FD5-GW-032019	MW-19D	Water	03/20/2019	14:50	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (MW19D-GW-032019)
MW20D-GW-031519	MW-20D	Water	03/15/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	DUP
MW21D-GW-031419	MW-21D	Water	03/14/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW24S-GW-031319	MW-24S	Water	03/13/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	DUP
MW25S-GW-031319	MW-25S	Water	03/13/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	DUP
Randall-GW-032119	Randall Well	Water	03/21/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	
Reed-GW-032119	Reed Well (W30)	Water	03/21/2019	14:00	X	X	X	X	X	X	X	X	X	X	X	DUP
Stark-GW-032119	Stark Well (W15)	Water	03/21/2019	12:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
SG1-GW-032119	Stream Gauge 1	Water	03/21/2019	15:20											X	
SG2-GW-032119	Stream Gauge 2	Water	03/21/2019	15:25											X	
Thorson-GW-032119	Thorson Well	Water	03/21/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	
W20-GW-031919	Out-of-Use Marlow Well (W20)	Water	03/19/2019	12:35	X	X	X	X	X	X	X	X	X	X	X	

Table 1
Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
W26-GW-032019	Out-of-Use Freeman School Well (W26)	Water	03/20/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
TB-031319	--	Water	03/13/2019	--											X	Trip Blank
TB-031419	--	Water	03/14/2019	--											X	Trip Blank
TB-031519	--	Water	03/15/2019	--											X	Trip Blank
TB-031819	--	Water	03/18/2019	--											X	Trip Blank
TB-031919	--	Water	03/19/2019	--											X	Trip Blank
TB-032019	--	Water	03/20/2019	--											X	Trip Blank
TB-032119	--	Water	03/21/2019	--											X	Trip Blank
TB2-032119	--	Water	03/21/2019	--											X	Trip Blank

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well
	Sample Name:	Asher-GW-032119	Atwood-GW-032119	AtwoodShop-GW-032119	Lang-GW-032119	Lashaw-GW-032119
	Sample Date:	03/21/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well
Sample Name:	Asher-GW-032119	Atwood-GW-032119	AtwoodShop-GW-032119	Lang-GW-032119	Lashaw-GW-032119
Sample Date:	03/21/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	0.77
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well
Sample Name:	Asher-GW-032119	Atwood-GW-032119	AtwoodShop-GW-032119	Lang-GW-032119	Lashaw-GW-032119
Sample Date:	03/21/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9
Metals					
Aluminum (dissolved)	µg/L	<15.5	<15.5	15.6 J	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	78.6	40.6	29.7	18.0
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	0.66 J	0.86 J	0.26 J	<0.26
Calcium (dissolved)	µg/L	62900	26300	32600	43500
Chromium (dissolved)	µg/L	0.81 J	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	2.0 J	<0.50	<0.50	0.53 J
Copper (dissolved)	µg/L	131	8.1 J	412	87.0
Iron (dissolved)	µg/L	4.7 J	16.0 J	237	217
Lead (dissolved)	µg/L	2.0 J	<2.0	8.0 J	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	
Sample Name:	Asher-GW-032119	Atwood-GW-032119	AtwoodShop-GW-032119	Lang-GW-032119	Lashaw-GW-032119	
Sample Date:	03/21/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019	
Parameters	Unit					
Metals (Continued)						
Magnesium (dissolved)	µg/L	18500	11400	11000	12200	12900
Manganese (dissolved)	µg/L	0.25 J	13.9	7.0	9.4	0.25 J
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	3.3 J	2.7 J	3.8 J	<1.1	2.5 J
Potassium (dissolved)	µg/L	1200 J	3780	1500 J	1100 J	3760
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	20600	15100	12800	17200	15800
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	10.7 J	2.2 J	7.0 J	5.8 J	11.1 J
Zinc (dissolved)	µg/L	27.5	32.1	1700	4.8 J	30.6
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	226	147	161	206	148
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	6.8 J	1.2 J	1.3 J	1.6 J	1.6 J
Nitrate (as N)	mg/L	6.6 J	0.14 J	0.73 J	0.42 J	2.4 J
Nitrite/Nitrate	mg/L	7.1	0.15	0.56	0.49	2.5
Sulfate	mg/L	24.2 J	3.3 J	3.8 J	2.0 J	5.4 J
Sulfide	mg/L	<0.0054 J	<0.0054 J	<0.0054 J	<0.0054 J	0.0074 J
Total dissolved solids (TDS)	mg/L	350	210	205	244	198
Total organic carbon (TOC)	mg/L	0.94 J	<0.39	0.50 J	<0.39	0.52 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	Marlow Well Marlow-GW-032119 03/21/2019	Out-of-Use Marlow Well (No. 2) No.2-GW-032019 03/20/2019	MW-1D MW1D-GW-031819 03/18/2019	MW-1S MW1S-GW-031319 03/13/2019	MW-2D MW2D-GW-031819 03/18/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22 J	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID: Sample Name: Sample Date:	Marlow Well Marlow-GW-032119 03/21/2019	Out-of-Use Marlow Well (No. 2) No.2-GW-032019 03/20/2019	MW-1D MW1D-GW-031819 03/18/2019	MW-1S MW1S-GW-031319 03/13/2019	MW-2D MW2D-GW-031819 03/18/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	104	49.5	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	7.6	4.7	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	1.8 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID: Sample Name: Sample Date:	Marlow Well Marlow-GW-032119 03/21/2019	Out-of-Use Marlow Well (No. 2) No.2-GW-032019 03/20/2019	MW-1D MW1D-GW-031819 03/18/2019	MW-1S MW1S-GW-031319 03/13/2019	MW-2D MW2D-GW-031819 03/18/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	87.6	<4.9	33.4
Metals					
Aluminum (dissolved)	µg/L	<15.5	<15.5	67.4 J	54.6 J
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	31.1	18.2	76.4	94.3
Beryllium (dissolved)	µg/L	<0.12	<0.12	0.17 J	<0.12
Cadmium (dissolved)	µg/L	0.76 J	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	48400	54900	50600	39200
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	1.8 J	<0.50	<0.50	1.3 J
Copper (dissolved)	µg/L	48.5	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	13.2 J	3520	62.6	2220
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	
Sample Name:	Marlow-GW-032119	No.2-GW-032019	MW1D-GW-031819	MW1S-GW-031319	MW2D-GW-031819	
Sample Date:	03/21/2019	03/20/2019	03/18/2019	03/13/2019	03/18/2019	
Parameters	Unit					
Metals (Continued)						
Magnesium (dissolved)	µg/L	13700	15500	12100	30700	10200
Manganese (dissolved)	µg/L	1.5 J	152	40.8	3.5 J	947
Mercury (dissolved)	µg/L	<0.078	<0.078	0.16 J	<0.078	<0.078
Nickel (dissolved)	µg/L	2.1 J	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1350 J	399 J	1190 J	324 J	2890
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	12700	15700	11100	38600	16200
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<8.4 J	<4.3
Vanadium (dissolved)	µg/L	8.8 J	2.5 J	1.8 J	10.1 J	1.2 J
Zinc (dissolved)	µg/L	83.3	15.4 J	4.9 J	12.9 J	3.3 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	166	239	205	503	176
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	89.8	<17.0
Chloride	mg/L	16.6 J	2.3	1.7	7.8 J	1.5
Nitrate (as N)	mg/L	3.5 J	0.56	0.13 J	0.060 J	0.043 J
Nitrite/Nitrate	mg/L	3.8	0.71	0.13	0.039 J	0.021 J
Sulfate	mg/L	12.5 J	2.2	3.8 J	20.0 J	2.1 J
Sulfide	mg/L	<0.0054 J	<0.0054 J	<0.0054	R	<0.0054
Total dissolved solids (TDS)	mg/L	278	271	247	577 J	216
Total organic carbon (TOC)	mg/L	0.67 J	1.4 J	<0.93 J	10.1	1.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	MW-3D	MW-3D	MW-4D	MW-5D	MW-6D
	Sample Name:	MW3D-GW-031519	FD3-GW-031519	MW4D-GW-031919	MW5D-GW-031819	MW6D-GW-031419
	Sample Date:	03/15/2019	03/15/2019 Duplicate	03/19/2019	03/18/2019	03/14/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	15.0 J	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-3D	MW-3D	MW-4D	MW-5D	MW-6D
Sample Name:	MW3D-GW-031519	FD3-GW-031519	MW4D-GW-031919	MW5D-GW-031819	MW6D-GW-031419
Sample Date:	03/15/2019	03/15/2019 Duplicate	03/19/2019	03/18/2019	03/14/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	0.37 J	3.4
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-3D	MW-3D	MW-4D	MW-5D	MW-6D
Sample Name:	MW3D-GW-031519	FD3-GW-031519	MW4D-GW-031919	MW5D-GW-031819	MW6D-GW-031419
Sample Date:	03/15/2019	03/15/2019 Duplicate	03/19/2019	03/18/2019	03/14/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.36 J	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9
Metals					
Aluminum (dissolved)	µg/L	<15.5	<15.5	6970	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	38.3	40.6	70.2	16.9
Beryllium (dissolved)	µg/L	0.17 J	0.16 J	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.31 J	<0.26
Calcium (dissolved)	µg/L	28700	30600	12600	49300
Chromium (dissolved)	µg/L	<0.49	<0.49	14.5	<0.49
Cobalt (dissolved)	µg/L	0.89 J	0.70 J	4.4 J	0.67 J
Copper (dissolved)	µg/L	<1.2	<1.2	7.7 J	<1.2
Iron (dissolved)	µg/L	9.3 J	9.4 J	6190	7.5 J
Lead (dissolved)	µg/L	2.4 J	<2.0	39.5	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-3D	MW-3D	MW-4D	MW-5D	MW-6D	
Sample Name:	MW3D-GW-031519	FD3-GW-031519	MW4D-GW-031919	MW5D-GW-031819	MW6D-GW-031419	
Sample Date:	03/15/2019	03/15/2019 Duplicate	03/19/2019	03/18/2019	03/14/2019	
Parameters	Unit					
Metals (Continued)						
Magnesium (dissolved)	µg/L	8270	8820	4220	14300	14600
Manganese (dissolved)	µg/L	4.8 J	4.7 J	168	0.64 J	11.4
Mercury (dissolved)	µg/L	<0.078	<0.078	0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	15.4 J	<1.1	<1.1
Potassium (dissolved)	µg/L	985 J	1030 J	3740	1240 J	6930
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	0.39 J	0.55 J	<0.38
Sodium (dissolved)	µg/L	12000	12800	9260	17400	17800
Thallium (dissolved)	µg/L	<8.6 J	<4.3	<4.3	<4.3	<6.6 J
Vanadium (dissolved)	µg/L	1.8 J	1.7 J	12.0 J	8.0 J	14.4 J
Zinc (dissolved)	µg/L	<2.5	<2.5	39.6	4.6 J	<2.5
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	146	142	54.0	226	197
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	61.6	<17.0	<17.0
Chloride	mg/L	3.3 J	3.3 J	8.4	1.0 J	3.3 J
Nitrate (as N)	mg/L	0.14	0.14	<0.015	0.18 J	0.55 J
Nitrite/Nitrate	mg/L	0.15	0.15	0.042 J	0.19	0.62
Sulfate	mg/L	3.1 J	3.1 J	3.2	1.9 J	5.3
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	<0.0054	R
Total dissolved solids (TDS)	mg/L	197	201	255	271	255
Total organic carbon (TOC)	mg/L	<0.56 J	<0.44 J	10.5	<0.64 J	<0.68 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9D
Sample Name:	MW6S-GW-031319	MW6U-GW-031419	MW7S-GW-031319	MW8S-GW-031319	MW9D-GW-031519	FD2-GW-031519
Sample Date:	03/13/2019	03/14/2019	03/13/2019	03/13/2019	03/15/2019	03/15/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	69.6	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	33.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9D
Sample Name:	MW6S-GW-031319	MW6U-GW-031419	MW7S-GW-031319	MW8S-GW-031319	MW9D-GW-031519	FD2-GW-031519
Sample Date:	03/13/2019	03/14/2019	03/13/2019	03/13/2019	03/15/2019	03/15/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	26.6	1.0	214	124
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	1.2	<0.45	51.4	4.5
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9D
Sample Name:	MW6S-GW-031319	MW6U-GW-031419	MW7S-GW-031319	MW8S-GW-031319	MW9D-GW-031519	FD2-GW-031519
Sample Date:	03/13/2019	03/14/2019	03/13/2019	03/13/2019	03/15/2019	03/15/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	0.098 J	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Aluminum (dissolved)	µg/L	87.1 J	1560	34.8 J	<15.5	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	36.8	46.9	60.8	31.9	27.2
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	0.19 J	0.14 J
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	32900	33100	49700	44300	53500
Chromium (dissolved)	µg/L	<0.49	1.4 J	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	0.54 J	1.4 J	6.9 J	<0.50	0.53 J
Copper (dissolved)	µg/L	<1.2	1.8 J	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	91.5	1470	258	<17.0 J	<4.3
Lead (dissolved)	µg/L	<2.0	<2.0	5.0 J	2.7 J	2.8 J

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-6S	MW-6U	MW-7S	MW-8S	MW-9D	MW-9D	
Sample Name:	MW6S-GW-031319	MW6U-GW-031419	MW7S-GW-031319	MW8S-GW-031319	MW9D-GW-031519	FD2-GW-031519	
Sample Date:	03/13/2019	03/14/2019	03/13/2019	03/13/2019	03/15/2019	03/15/2019 Duplicate	
Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	9250	8410	14000	10300	15200	15100
Manganese (dissolved)	µg/L	1.8 J	18.7	975	9.6	1.1 J	1.1 J
Mercury (dissolved)	µg/L	<0.078	0.13 J	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	3.5 J	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	360 J	4600	5430	<310	2260 J	2230 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	11200	20700	30100	11200	13200	13300
Thallium (dissolved)	µg/L	<4.3	<7.2 J	<8.4 J	<7.8 J	<5.8 J	<5.8 J
Vanadium (dissolved)	µg/L	4.6 J	6.0 J	0.84 J	1.5 J	8.3 J	7.9 J
Zinc (dissolved)	µg/L	11.0 J	9.1 J	41.5	8.6 J	<2.5	<2.5
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	146	122	141	133	171	166
Chemical oxygen demand (COD)	mg/L	<17.0	35.9 J	77.3	<17.0	<17.0	<17.0
Chloride	mg/L	1.5 J	32.7 J	79.9 J	3.0 J	12.3 J	12.2 J
Nitrate (as N)	mg/L	0.21 J	0.65 J	0.054 J	8.3 J	4.3	4.3
Nitrite/Nitrate	mg/L	0.19	0.72	0.42	9.0	4.3	4.1
Sulfate	mg/L	1.6 J	3.9	10.9 J	19.6 J	33.6 J	33.6 J
Sulfide	mg/L	R	R	R	R	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	203 J	236	344 J	281 J	315	306
Total organic carbon (TOC)	mg/L	1.0	5.1	18.5	1.7	<0.92 J	1.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S
	Sample Name:	MW9S-GW-031319	MW9U-GW-031519	FD1-GW-031519	MW10S-GW-031319	MW11S-GW-031319	MW12S-GW-031319
	Sample Date:	03/13/2019	03/15/2019	03/15/2019 Duplicate	03/13/2019	03/13/2019	03/13/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S
Sample Name:	MW9S-GW-031319	MW9U-GW-031519	FD1-GW-031519	MW10S-GW-031319	MW11S-GW-031319	MW12S-GW-031319
Sample Date:	03/13/2019	03/15/2019	03/15/2019 Duplicate	03/13/2019	03/13/2019	03/13/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	0.42 J	<0.078	<0.078
Carbon tetrachloride	µg/L	326	810	754	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	51.4	21.8	21.2	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S
Sample Name:	MW9S-GW-031319	MW9U-GW-031519	FD1-GW-031519	MW10S-GW-031319	MW11S-GW-031319	MW12S-GW-031319
Sample Date:	03/13/2019	03/15/2019	03/15/2019 Duplicate	03/13/2019	03/13/2019	03/13/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Aluminum (dissolved)	µg/L	92.5 J	71.2 J	48.8 J	103 J	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	113	44.2	40.6	26.4	190
Beryllium (dissolved)	µg/L	<0.12	<0.12	0.14 J	0.12 J	0.18 J
Cadmium (dissolved)	µg/L	0.55 J	<0.26	0.32 J	<0.26	<0.26
Calcium (dissolved)	µg/L	95600	67300	62500	72800	46100
Chromium (dissolved)	µg/L	0.61 J	1.1 J	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	2.7 J	0.81 J	0.64 J	0.67 J	0.72 J
Copper (dissolved)	µg/L	1.9 J	<1.2	<1.2	7.4 J	<1.2
Iron (dissolved)	µg/L	790	336	260	127	66.2
Lead (dissolved)	µg/L	2.2 J	3.4 J	2.5 J	2.8 J	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-9S	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S	
Sample Name:	MW9S-GW-031319	MW9U-GW-031519	FD1-GW-031519	MW10S-GW-031319	MW11S-GW-031319	MW12S-GW-031319	
Sample Date:	03/13/2019	03/15/2019	03/15/2019 Duplicate	03/13/2019	03/13/2019	03/13/2019	
Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	27300	17500	16300	20300	12600	21900
Manganese (dissolved)	µg/L	70.0	14.7	12.1	4.2 J	8.0	2.6 J
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	2.9 J	6.1 J	4.9 J	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	2770	3020	2780	<310	620 J	<310
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	0.41 J	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	104000	85500	79300	13600	18500	35100
Thallium (dissolved)	µg/L	<6.2 J	<6.3 J	<6.9 J	<5.0 J	<7.1 J	<7.4 J
Vanadium (dissolved)	µg/L	2.1 J	6.7 J	5.8 J	3.2 J	6.5 J	4.0 J
Zinc (dissolved)	µg/L	8.0 J	7.9 J	3.1 J	6.2 J	10.3 J	3.5 J
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	84.4	155	147	328	213	249
Chemical oxygen demand (COD)	mg/L	22.7 J	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	328 J	161 J	163 J	0.69 J	1.6 J	40.8 J
Nitrate (as N)	mg/L	11.2 J	5.7	5.7	0.17 J	<0.015 J	7.0 J
Nitrite/Nitrate	mg/L	12.4	5.6	5.6	0.20	0.028 J	7.3
Sulfate	mg/L	59.5 J	32.5 J	32.0 J	8.0 J	4.2 J	39.5 J
Sulfide	mg/L	R	<0.0054	<0.0054	R	0.011 J	R
Total dissolved solids (TDS)	mg/L	892	595	614	344 J	238	474 J
Total organic carbon (TOC)	mg/L	2.2	<2.8 J	1.3	<0.96 J	2.8	2.9

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D	MW-17D
Sample Name:	MW13S-GW-031919	MW14D-GW-031819	MW15D-GW-031419	MW16D-GW-031919	MW17D-GW-032019	FD4-GW-032019
Sample Date:	03/19/2019	03/18/2019	03/14/2019	03/19/2019	03/20/2019	03/20/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22 J	<0.22 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D	MW-17D
Sample Name:	MW13S-GW-031919	MW14D-GW-031819	MW15D-GW-031419	MW16D-GW-031919	MW17D-GW-032019	FD4-GW-032019
Sample Date:	03/19/2019	03/18/2019	03/14/2019	03/19/2019	03/20/2019	03/20/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	0.46 J
Carbon tetrachloride	µg/L	<0.19	<0.19	10.7	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	0.55 J	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D	MW-17D
Sample Name:	MW13S-GW-031919	MW14D-GW-031819	MW15D-GW-031419	MW16D-GW-031919	MW17D-GW-032019	FD4-GW-032019
Sample Date:	03/19/2019	03/18/2019	03/14/2019	03/19/2019	03/20/2019	03/20/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	5.8 J	6.3 J
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Aluminum (dissolved)	µg/L	33.6 J	112 J	<15.5	<15.5	188 J
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	66.0	23.2	10.6	66.4	85.5
Beryllium (dissolved)	µg/L	0.16 J	<0.12	<0.12	0.16 J	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
Calcium (dissolved)	µg/L	35800	27400	37800	67200	41700
Chromium (dissolved)	µg/L	1.1 J	<0.49	<0.49	0.51 J	<0.49
Cobalt (dissolved)	µg/L	0.74 J	<0.50	0.67 J	0.58 J	1.6 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	<29.6 J	278	10.4 J	<15.0 J	585
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-13S	MW-14D	MW-15D	MW-16D	MW-17D	MW-17D	
Sample Name:	MW13S-GW-031919	MW14D-GW-031819	MW15D-GW-031419	MW16D-GW-031919	MW17D-GW-032019	FD4-GW-032019	
Sample Date:	03/19/2019	03/18/2019	03/14/2019	03/19/2019	03/20/2019	03/20/2019 Duplicate	
Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	10500	8290	13600	19700	18500	18600
Manganese (dissolved)	µg/L	<0.98 J	260	1.6 J	<0.64 J	209	211
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	1170 J	<310	2530	1730 J	10700	10800
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	0.46 J	<0.38	<0.38	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	15600	20300	14900	20100	42600	43300
Thallium (dissolved)	µg/L	<4.3	<4.3	<6.3 J	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	9.9 J	6.5 J	10.3 J	10.6 J	1.0 J	1.0 J
Zinc (dissolved)	µg/L	8.1 J	10.3 J	3.4 J	3.6 J	<2.5	<2.5
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	163	150	178	234	198	213
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	25.4 J	27.5 J
Chloride	mg/L	1.1 J	1.1 J	3.0 J	6.8	22.6	23.3
Nitrate (as N)	mg/L	0.32	0.085 J	2.0 J	6.0	0.039 J	<0.015
Nitrite/Nitrate	mg/L	0.39	0.073 J	2.1	6.5	<0.018	<0.018
Sulfate	mg/L	4.9	1.2 J	13.9	24.2	60.2	61.9
Sulfide	mg/L	<0.0054	<0.0054	R	<0.0054	0.024 J	0.013 J
Total dissolved solids (TDS)	mg/L	183	202	255	361	391	395
Total organic carbon (TOC)	mg/L	<0.82 J	1.4	<0.69 J	<1.7 J	8.5	8.4

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	MW-24S
	Sample Name:	MW18D-GW-031919	MW19D-GW-032019	FD5-GW-032019	MW20D-GW-031519	MW21D-GW-031419	MW24S-GW-031319
	Sample Date:	03/19/2019	03/20/2019	03/20/2019 Duplicate	03/15/2019	03/14/2019	03/13/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22 J	<0.22 J	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	MW-24S
Sample Name:	MW18D-GW-031919	MW19D-GW-032019	FD5-GW-032019	MW20D-GW-031519	MW21D-GW-031419	MW24S-GW-031319
Sample Date:	03/19/2019	03/20/2019	03/20/2019 Duplicate	03/15/2019	03/14/2019	03/13/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	0.23 J	0.26 J	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	386	400	<0.19	66.5
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	21.0	21.5	<0.45	41.7
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	MW-24S
Sample Name:	MW18D-GW-031919	MW19D-GW-032019	FD5-GW-032019	MW20D-GW-031519	MW21D-GW-031419	MW24S-GW-031319
Sample Date:	03/19/2019	03/20/2019	03/20/2019 Duplicate	03/15/2019	03/14/2019	03/13/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Aluminum (dissolved)	µg/L	15.5 J	25.3 J	20.4 J	37.2 J	<15.5
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	51.8	10.2	10.1	18.8	63.1
Beryllium (dissolved)	µg/L	0.16 J	<0.12	<0.12	<0.12	0.14 J
Cadmium (dissolved)	µg/L	<0.26	0.77 J	0.63 J	<0.26	<0.26
Calcium (dissolved)	µg/L	22300	41100	40600	57600	20800
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	0.65 J	1.3 J	1.2 J	0.67 J	0.85 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	73.8	29.6 J	28.6 J	20.2 J	156
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-18D	MW-19D	MW-19D	MW-20D	MW-21D	MW-24S	
Sample Name:	MW18D-GW-031919	MW19D-GW-032019	FD5-GW-032019	MW20D-GW-031519	MW21D-GW-031419	MW24S-GW-031319	
Sample Date:	03/19/2019	03/20/2019	03/20/2019 Duplicate	03/15/2019	03/14/2019	03/13/2019	
Parameters	Unit						
Metals (Continued)							
Magnesium (dissolved)	µg/L	15600	17900	17700	21300	18100	45900
Manganese (dissolved)	µg/L	44.1	1.1 J	1.1 J	2.6 J	73.0	392
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	<1.1	3.6 J	1.5 J	<1.1	<1.1	<1.1
Potassium (dissolved)	µg/L	4160	4450	4400	3570	3830	4090
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	0.46 J	<0.38
Sodium (dissolved)	µg/L	19700	15200	15100	19000	20300	125000
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<7.8 J	<6.3 J	<5.1 J
Vanadium (dissolved)	µg/L	0.84 J	6.6 J	6.4 J	5.5 J	0.37 J	1.8 J
Zinc (dissolved)	µg/L	<2.5	<2.5	<2.5	<2.5	5.2 J	7.3 J
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	154	180	177	269	177	118
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0	77.8
Chloride	mg/L	2.0	6.8	6.7	5.5 J	2.4 J	327 J
Nitrate (as N)	mg/L	<0.015	4.1	4.0	1.1	<0.015 J	3.7 J
Nitrite/Nitrate	mg/L	<0.018	4.5	4.3	1.2	<0.018	3.7
Sulfate	mg/L	6.2	22.5	22.5	7.4 J	9.2	50.9 J
Sulfide	mg/L	<0.0054	<0.0054 J	<0.0054 J	<0.0054	R	R
Total dissolved solids (TDS)	mg/L	191	292	286	332	216	844 J
Total organic carbon (TOC)	mg/L	<0.52 J	0.84 J	0.78 J	<0.94 J	<0.71 J	11.7

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	MW-25S	Randall Well	Reed Well (W30)	Stark Well (W15)	Stream Gauge 1
	Sample Name:	MW25S-GW-031319	Randall-GW-032119	Reed-GW-032119	Stark-GW-032119	SG1-GW-032119
	Sample Date:	03/13/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22 J	<0.22	<0.22	<0.22 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	11.5 J	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID:	MW-25S	Randall Well	Reed Well (W30)	Stark Well (W15)	Stream Gauge 1
	Sample Name:	MW25S-GW-031319	Randall-GW-032119	Reed-GW-032119	Stark-GW-032119	SG1-GW-032119
	Sample Date:	03/13/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	34.0	182	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	8.9	8.0	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	MW-25S MW25S-GW-031319 03/13/2019	Randall Well Randall-GW-032119 03/21/2019	Reed Well (W30) Reed-GW-032119 03/21/2019	Stark Well (W15) Stark-GW-032119 03/21/2019	Stream Gauge 1 SG1-GW-032119 03/21/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	--
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	--
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	--
Metals						
Aluminum (dissolved)	µg/L	113 J	<15.5	<15.5	<15.5	--
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	--
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	--
Barium (dissolved)	µg/L	136	22.4	46.0	35.2	--
Beryllium (dissolved)	µg/L	0.17 J	<0.12	<0.12	<0.12	--
Cadmium (dissolved)	µg/L	<0.26	<0.26	0.40 J	0.92 J	--
Calcium (dissolved)	µg/L	74600	44800	26700	33000	--
Chromium (dissolved)	µg/L	2.6 J	<0.49	<0.49	<0.49	--
Cobalt (dissolved)	µg/L	3.4 J	<0.50	0.92 J	1.5 J	--
Copper (dissolved)	µg/L	5.0 J	5.8 J	<1.2	112	--
Iron (dissolved)	µg/L	331	4.4 J	15.7 J	<4.3	--
Lead (dissolved)	µg/L	2.8 J	<2.0	<2.0	<2.0	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Location ID:	MW-25S	Randall Well	Reed Well (W30)	Stark Well (W15)	Stream Gauge 1	
Sample Name:	MW25S-GW-031319	Randall-GW-032119	Reed-GW-032119	Stark-GW-032119	SG1-GW-032119	
Sample Date:	03/13/2019	03/21/2019	03/21/2019	03/21/2019	03/21/2019	
Parameters	Unit					
Metals (Continued)						
Magnesium (dissolved)	µg/L	70100	13800	10300	11400	--
Manganese (dissolved)	µg/L	167	0.54 J	0.99 J	0.36 J	--
Mercury (dissolved)	µg/L	<0.078	<0.078	<0.078	<0.078	--
Nickel (dissolved)	µg/L	<1.1	<1.1	2.9 J	2.9 J	--
Potassium (dissolved)	µg/L	11200	1310 J	3070	1760 J	--
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	--
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	--
Sodium (dissolved)	µg/L	679000	13900	13300	17100	--
Thallium (dissolved)	µg/L	<5.9 J	<4.3	<4.3	<4.3	--
Vanadium (dissolved)	µg/L	2.8 J	5.3 J	25.2	6.4 J	--
Zinc (dissolved)	µg/L	3.7 J	95.9	8.4 J	67.1	--
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	83.3	194	142	113	--
Chemical oxygen demand (COD)	mg/L	104	<17.0	<17.0	<17.0	--
Chloride	mg/L	1280 J	4.8 J	1.2 J	1.3 J	--
Nitrate (as N)	mg/L	1.4 J	1.8 J	0.24 J	13.7 J	--
Nitrite/Nitrate	mg/L	1.4	2.0	0.27	15.7	--
Sulfate	mg/L	60.5 J	7.0 J	6.4 J	9.8 J	--
Sulfide	mg/L	R	<0.0054 J	<0.0054 J	<0.0054 J	--
Total dissolved solids (TDS)	mg/L	2060 J	255	188	263	--
Total organic carbon (TOC)	mg/L	12.8	0.48 J	<0.39	0.58 J	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	Stream Gauge 2 SG2-GW-032119 03/21/2019	Thorson Well Thorson-GW-032119 03/21/2019	Out-of-Use Marlow Well (W20) W20-GW-031919 03/19/2019	Out-of-Use Freeman School Well (W26) W26-GW-032019 03/20/2019
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22 J	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	275	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	105	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	Stream Gauge 2 SG2-GW-032119 03/21/2019	Thorson Well Thorson-GW-032119 03/21/2019	Out-of-Use Marlow Well (W20) W20-GW-031919 03/19/2019	Out-of-Use Freeman School Well (W26) W26-GW-032019 03/20/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	34.9
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	2.7 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	Stream Gauge 2 SG2-GW-032119 03/21/2019	Thorson Well Thorson-GW-032119 03/21/2019	Out-of-Use Marlow Well (W20) W20-GW-031919 03/19/2019	Out-of-Use Freeman School Well (W26) W26-GW-032019 03/20/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	--	<3.0	<3.0	<3.0
Ethene	µg/L	--	<2.9	<2.9	<2.9
Methane	µg/L	--	<4.9	357	<4.9
Metals					
Aluminum (dissolved)	µg/L	--	<15.5	709	<15.5
Antimony (dissolved)	µg/L	--	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	--	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	--	53.8	21.2	6.8 J
Beryllium (dissolved)	µg/L	--	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	--	0.59 J	<0.26	0.83 J
Calcium (dissolved)	µg/L	--	24000	15400	36900
Chromium (dissolved)	µg/L	--	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	--	1.4 J	<0.50	1.7 J
Copper (dissolved)	µg/L	--	<1.2	<1.2	<1.2
Iron (dissolved)	µg/L	--	1990	1400	4.5 J
Lead (dissolved)	µg/L	--	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

	Location ID: Sample Name: Sample Date:	Stream Gauge 2 SG2-GW-032119 03/21/2019	Thorson Well Thorson-GW-032119 03/21/2019	Out-of-Use Marlow Well (W20) W20-GW-031919 03/19/2019	Out-of-Use Freeman School Well (W26) W26-GW-032019 03/20/2019
Parameters	Unit				
Metals (Continued)					
Magnesium (dissolved)	µg/L	--	11800	6790	10500
Manganese (dissolved)	µg/L	--	33.0	118	0.64 J
Mercury (dissolved)	µg/L	--	<0.078	<0.078	<0.078
Nickel (dissolved)	µg/L	--	1.9 J	<1.1	<1.1
Potassium (dissolved)	µg/L	--	3850	1890 J	1990 J
Selenium (dissolved)	µg/L	--	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	--	<0.38	<0.38	<0.38
Sodium (dissolved)	µg/L	--	14400	8150	12800
Thallium (dissolved)	µg/L	--	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	--	0.42 J	1.1 J	7.2 J
Zinc (dissolved)	µg/L	--	22.9	42.9	81.8
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	--	154	81.0	147
Chemical oxygen demand (COD)	mg/L	--	<17.0	20.7 J	<17.0
Chloride	mg/L	--	1.2 J	3.0	3.8
Nitrate (as N)	mg/L	--	<0.015 J	<0.015	2.1
Nitrite/Nitrate	mg/L	--	<0.018	<0.018	2.4
Sulfate	mg/L	--	2.5 J	0.83 J	8.6
Sulfide	mg/L	--	<0.0054 J	<0.0054	<0.0054 J
Total dissolved solids (TDS)	mg/L	--	196	121	230
Total organic carbon (TOC)	mg/L	--	<0.39	3.1	1.2

Notes:

"--" - Not analyzed

< - Not detected at the associated reporting limit

< () J - Not detected; associated reporting limit is estimated

J - Estimated concentration

R - Rejected

Table 4

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units	
Metals	Iron (dissolved)	03/21/2019	4.4 J	MW8S-GW-031319	17.0 J	<17.0 J	µg/L	
				MW12S-GW-031319	4.8 J	<4.8 J	µg/L	
	Thallium (dissolved)	03/21/2019	4.9 J	MW11S-GW-031319	7.1 J	<7.1 J	µg/L	
				MW9S-GW-031319	6.2 J	<6.2 J	µg/L	
				MW25S-GW-031319	5.9 J	<5.9 J	µg/L	
				MW24S-GW-031319	5.1 J	<5.1 J	µg/L	
				MW8S-GW-031319	7.8 J	<7.8 J	µg/L	
				MW7S-GW-031319	8.4 J	<8.4 J	µg/L	
				MW1S-GW-031319	8.4 J	<8.4 J	µg/L	
				MW10S-GW-031319	5.0 J	<5.0 J	µg/L	
				MW12S-GW-031319	7.4 J	<7.4 J	µg/L	
				6.3 J	MW15D-GW-031419	5.9 J	<6.3 J	µg/L
					MW21D-GW-031419	4.7 J	<6.3 J	µg/L
					MW6U-GW-031419	7.2 J	<7.2 J	µg/L
					MW6D-GW-031419	6.6 J	<6.6 J	µg/L
				5.8 J	MW9U-GW-031519	6.3 J	<6.3 J	µg/L
					MW9D-GW-031519	5.2 J	<5.8 J	µg/L
MW3D-GW-031519	8.6 J	<8.6 J	µg/L					
FD1-GW-031519	6.9 J	<6.9 J	µg/L					

Table 4

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Thallium (dissolved)	03/21/2019	5.8 J	FD2-GW-031519	4.4 J	<5.8 J	µg/L
				MW20D-GW-031519	7.8 J	<7.8 J	µg/L
	Cadmium (dissolved)	03/25/2019	0.31 J	MW4D-GW-031919	0.30 J	<0.31 J	µg/L
	Iron (dissolved)	03/25/2019	5.8 J	MW16D-GW-031919	15.0 J	<15.0 J	µg/L
				MW13S-GW-031919	29.6 J	<29.6 J	µg/L
Manganese (dissolved)	03/25/2019	0.22 J	MW16D-GW-031919	0.64 J	<0.64 J	µg/L	
			MW13S-GW-031919	0.98 J	<0.98 J	µg/L	
General Chemistry	Total organic carbon (TOC)	03/18/2019	0.20 J	MW10S-GW-031319	0.96 J	<0.96 J	mg/L
				MW15D-GW-031419	0.69 J	<0.69 J	mg/L
				MW21D-GW-031419	0.71 J	<0.71 J	mg/L
				MW6D-GW-031419	0.68 J	<0.68 J	mg/L
	Total organic carbon (TOC)	03/21/2019	0.25 J	MW9U-GW-031519	2.8 J	<2.8 J	mg/L
				MW9D-GW-031519	0.92 J	<0.92 J	mg/L
				MW3D-GW-031519	0.56 J	<0.56 J	mg/L
				MW20D-GW-031519	0.94 J	<0.94 J	mg/L
				FD3-GW-031519	0.44 J	<0.44 J	mg/L
				MW1D-GW-031819	0.93 J	<0.93 J	mg/L

Table 4

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
General Chemistry	Total organic carbon (TOC)	03/21/2019	0.25 J	MW5D-GW-031819	0.64 J	<0.64 J	mg/L
				MW16D-GW-031919	1.7 J	<1.7 J	mg/L
				MW18D-GW-031919	0.52 J	<0.52 J	mg/L
		03/22/2019	0.34 J	MW13S-GW-031919	0.82 J	<0.82 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- TOC - Total Organic Carbon

Table 5

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	1,2-Dichloroethane	3/28/2019	71	75-125	MW17D-GW-032019	<0.22 J	µg/L
					FD4-GW-032019	<0.22 J	µg/L
					MW19D-GW-032019	<0.22 J	µg/L
					FD5-GW-032019	<0.22 J	µg/L
					SG1-GW-032119	<0.22 J	µg/L
					SG2-GW-032119	<0.22 J	µg/L
					Marlow-GW-032119	<0.22 J	µg/L
					Randall-GW-032119	<0.22 J	µg/L

Notes:

- LCS - Laboratory Control Sample
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery		% Recovery	RPD			
General Chemistry	MW11S-GW-031319	Sulfide	-1	--	--	75-125	--	MW11S-GW-031319	0.011 J	mg/L
								MW9S-GW-031319	R	
								MW25S-GW-031319	R	
								MW24S-GW-031319	R	
								MW8S-GW-031319	R	
								MW7S-GW-031319	R	
								MW1S-GW-031319	R	
								MW10S-GW-031319	R	
								MW6S-GW-031319	R	
								MW12S-GW-031319	R	
								MW15D-GW-031419	R	
								MW21D-GW-031419	R	
								MW6U-GW-031419	R	
								MW6D-GW-031419	R	
	Lashaw-GW-032119	Sulfide	45	--	--	75-125	--	W26-GW-032019	<0.0054 J	mg/L
	Asher-GW-032119	Sulfide	36	--	--	75-125	--	No.2-GW-032019	<0.0054 J	mg/L
								MW17D-GW-032019	0.024 J	mg/L
								FD4-GW-032019	0.013 J	mg/L
								MW19D-GW-032019	<0.0054 J	mg/L
								FD5-GW-032019	<0.0054 J	mg/L
								Lashaw-GW-032119	0.0074 J	mg/L
								Asher-GW-032119	<0.0054 J	mg/L
								Atwood-GW-032119	<0.0054 J	mg/L
								AtwoodShop-GW-032119	<0.0054 J	mg/L
								Thorson-GW-032119	<0.0054 J	mg/L
								Lang-GW-032119	<0.0054 J	mg/L
								Reed-GW-032119	<0.0054 J	mg/L
								Marlow-GW-032119	<0.0054 J	mg/L
							Randall-GW-032119	<0.0054 J	mg/L	

Table 6
Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units	
						% Recovery	RPD				
General Chemistry	Stark-GW-032119	Sulfide	44	--	--	75-125	--	Stark-GW-032119	<0.0054 J	mg/L	
	MW11S-GW-031319	Chloride	88	88	0	90-110	20	MW11S-GW-031319	1.6 J	mg/L	
	MW9S-GW-031319	Chloride	76	77	0	90-110	20	MW9S-GW-031319	328 J	mg/L	
								MW25S-GW-031319	1280 J	mg/L	
								MW24S-GW-031319	327 J	mg/L	
								MW8S-GW-031319	3.0 J	mg/L	
								MW7S-GW-031319	79.9 J	mg/L	
								MW1S-GW-031319	7.8 J	mg/L	
								MW10S-GW-031319	0.69 J	mg/L	
								MW6S-GW-031319	1.5 J	mg/L	
								MW12S-GW-031319	40.8 J	mg/L	
		MW11S-GW-031319	Nitrate (as N)	87	87	0	90-110	20	MW11S-GW-031319	<0.015 J	mg/L
		MW9S-GW-031319	Nitrate (as N)	83	82	0	90-110	20	MW9S-GW-031319	11.2 J	mg/L
								MW25S-GW-031319	1.4 J	mg/L	
								MW24S-GW-031319	3.7 J	mg/L	
								MW8S-GW-031319	8.3 J	mg/L	
								MW7S-GW-031319	0.054 J	mg/L	
								MW1S-GW-031319	0.060 J	mg/L	
								MW10S-GW-031319	0.17 J	mg/L	
								MW6S-GW-031319	0.21 J	mg/L	
								MW12S-GW-031319	7.0 J	mg/L	
		MW11S-GW-031319	Sulfate	87	86	0	90-110	20	MW11S-GW-031319	4.2 J	mg/L
								MW9S-GW-031319	59.5 J	mg/L	
							MW25S-GW-031319	60.5 J	mg/L		
							MW24S-GW-031319	50.9 J	mg/L		
							MW8S-GW-031319	19.6 J	mg/L		
							MW7S-GW-031319	10.9 J	mg/L		
							MW1S-GW-031319	20.0 J	mg/L		

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 March 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units						
						% Recovery	RPD									
General Chemistry	MW11S-GW-031319	Sulfate	87	86	0	90-110	20	MW10S-GW-031319	8.0 J	mg/L						
								MW6S-GW-031319	1.6 J	mg/L						
								MW12S-GW-031319	39.5 J	mg/L						
	MW15D-GW-031419	Chloride	88	88	0	90-110	20	MW15D-GW-031419	3.0 J	mg/L						
								MW21D-GW-031419	2.4 J	mg/L						
								MW6U-GW-031419	32.7 J	mg/L						
								MW6D-GW-031419	3.3 J	mg/L						
		Nitrate (as N)	57	58	1	90-110	20	MW15D-GW-031419	2.0 J	mg/L						
								MW21D-GW-031419	<0.015 J	mg/L						
								MW6U-GW-031419	0.65 J	mg/L						
								MW6D-GW-031419	0.55 J	mg/L						
	MW9U-GW-031519	Chloride	77	78	0	90-110	20	MW9U-GW-031519	161 J	mg/L						
								MW9D-GW-031519	12.3 J	mg/L						
								MW3D-GW-031519	3.3 J	mg/L						
								FD1-GW-031519	163 J	mg/L						
FD2-GW-031519								12.2 J	mg/L							
MW20D-GW-031519								5.5 J	mg/L							
FD3-GW-031519								3.3 J	mg/L							
								Sulfate	41	40	0	90-110	20	MW9U-GW-031519	32.5 J	mg/L
														MW9D-GW-031519	33.6 J	mg/L
														MW3D-GW-031519	3.1 J	mg/L
														FD1-GW-031519	32.0 J	mg/L
														FD2-GW-031519	33.6 J	mg/L
	MW20D-GW-031519	7.4 J	mg/L													
FD3-GW-031519	3.1 J	mg/L														

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
General Chemistry	MW14D-GW-031819	Nitrate (as N)	83	83	0	90-110	20	MW14D-GW-031819	0.085 J	mg/L
								MW2D-GW-031819	0.043 J	mg/L
								MW1D-GW-031819	0.13 J	mg/L
								MW5D-GW-031819	0.18 J	mg/L
	MW14D-GW-031819	Sulfate	89	89	1	90-110	20	MW14D-GW-031819	1.2 J	mg/L
								MW2D-GW-031819	2.1 J	mg/L
								MW1D-GW-031819	3.8 J	mg/L
								MW5D-GW-031819	1.9 J	mg/L
	Asher-GW-032119	Chloride	77	77	0	90-110	20	Asher-GW-032119	6.8 J	mg/L
	Stark-GW-032119	Chloride	85	84	0	90-110	20	Atwood-GW-032119	1.2 J	mg/L
								AtwoodShop-GW-032119	1.3 J	mg/L
								Thorson-GW-032119	1.2 J	mg/L
								Stark-GW-032119	1.3 J	mg/L
								Lang-GW-032119	1.6 J	mg/L
								Reed-GW-032119	1.2 J	mg/L
								Marlow-GW-032119	16.6 J	mg/L
								Randall-GW-032119	4.8 J	mg/L
	Stark-GW-032119	Nitrate (as N)	81	78	1	90-110	20	Asher-GW-032119	6.6 J	mg/L
								Atwood-GW-032119	0.14 J	mg/L
								AtwoodShop-GW-032119	0.73 J	mg/L
Thorson-GW-032119								<0.015 J	mg/L	
Stark-GW-032119								13.7 J	mg/L	
Lang-GW-032119								0.42 J	mg/L	
Reed-GW-032119								0.24 J	mg/L	
Marlow-GW-032119								3.5 J	mg/L	
Randall-GW-032119	1.8 J	mg/L								
General Chemistry	Asher-GW-032119	Sulfate	52	52	0	90-110	20	Asher-GW-032119	24.2 J	mg/L

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019**

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits		Associated Sample IDs	Qualified Result	Units
						% Recovery	RPD			
	Stark-GW-032119	Sulfate	75	74	1	90-110	20	Atwood-GW-032119 AtwoodShop-GW-032119 Thorson-GW-032119 Stark-GW-032119 Lang-GW-032119 Reed-GW-032119 Marlow-GW-032119 Randall-GW-032119	3.3 J 3.8 J 2.5 J 9.8 J 2.0 J 6.4 J 12.5 J 7.0 J	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L
	Lashaw-GW-032119	Chloride	84	84	0	90-110	20	Lashaw-GW-032119	1.6 J	mg/L
		Nitrate (as N)	43	44	0	90-110	20	Lashaw-GW-032119	2.4 J	mg/L
		Sulfate	79	80	1	90-110	20	Lashaw-GW-032119	5.4 J	mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected

Table 7

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Parameter	Sample ID	Analyte	RPD		Associated Sample IDs	Qualified Result	Units
			RPD (percent)	Control Limit (percent)			
General Chemistry	MW25S-GW-031319	Total dissolved solids (TDS)	7	5	MW25S-GW-031319	2060 J	mg/L
	MW24S-GW-031319	Total dissolved solids (TDS)	6	5	MW24S-GW-031319	844 J	mg/L
					MW8S-GW-031319	281 J	mg/L
					MW7S-GW-031319	344 J	mg/L
					MW1S-GW-031319	577 J	mg/L
					MW10S-GW-031319	344 J	mg/L
					MW6S-GW-031319	203 J	mg/L
					MW12S-GW-031319	474 J	mg/L

Notes:

RPD - Relative Percent Difference

J - Estimated concentration

Table 8

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
March 2019

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	03/19/2019	Toluene	0.10 J	MW4D-GW-031919	0.36 J	<0.36 J	µg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

May 17, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/257-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10473442 and 10473723
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Basalt Packer Sampling at the Cenex Harvest Lease Site in Freeman, Washington during May 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample



holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at a low concentrations. The associated sample results were significantly greater than the blank and were not impacted. No qualification of the data was deemed necessary.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of a high acetone recovery. The associated non-detect results were not impacted and the associated sample detection was qualified as estimated due to the implied high bias (see Table 5).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. An MS analysis was performed as specified in Table 1.

The MS sample was spiked with the analyte of interest, and the result was evaluated using the "Guidelines". The percent recovery was within the control limits, demonstrating acceptable analytical accuracy with the exception of a high sulfide recovery. The associated sample result was non-detect and was not impacted. No qualification of the data was deemed necessary.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.



9. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 May 2019**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments
							Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
RC04-254-264.5-050219	RC-04	Water	254	264.5	05/02/2019	12:50	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
RC04-254-264.5-050219 (2)	RC-04	Water	254	264.5	05/02/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
RC04-265.5-276-050219	RC-04	Water	265.5	276	05/02/2019	17:35	X	X	X	X	X	X	X	X	X	X	X	
RC04-265.5-276-050219 (2)	RC-04	Water	265.5	276	05/02/2019	18:05	X	X	X	X	X	X	X	X	X	X	X	
RC04-148-SWL-050419	RC-04	Water	148	--	05/04/2019	07:45	X	X	X	X	X	X	X	X	X	X	X	
TB-050419	--	Water	--	--	05/04/2019	--											X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2
Analytical Methods
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	RC-04	RC-04	RC-04
Sample Name:	RC04-254-264.5-050219	RC04-254-264.5-050219 (2)	RC04-265.5-276-050219	RC04-265.5-276-050219 (2)	RC04-148-SWL-050419
Sample Date:	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/04/2019
Depth:	254-264.5 ft bgs	254-264.5 ft bgs	265.5-276 ft bgs	265.5-276 ft bgs	148 ft bgs

Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	12.5
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3
Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	RC-04	RC-04	RC-04
Sample Name:	RC04-254-264.5-050219	RC04-254-264.5-050219 (2)	RC04-265.5-276-050219	RC04-265.5-276-050219 (2)	RC04-148-SWL-050419
Sample Date:	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/04/2019
Depth:	254-264.5 ft bgs	254-264.5 ft bgs	265.5-276 ft bgs	265.5-276 ft bgs	148 ft bgs

Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	2.6 J
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	0.59 J
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	28.8 J
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	0.22 J
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3
Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	RC-04	RC-04	RC-04
Sample Name:	RC04-254-264.5-050219	RC04-254-264.5-050219 (2)	RC04-265.5-276-050219	RC04-265.5-276-050219 (2)	RC04-148-SWL-050419
Sample Date:	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/04/2019
Depth:	254-264.5 ft bgs	254-264.5 ft bgs	265.5-276 ft bgs	265.5-276 ft bgs	148 ft bgs

Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	70.9	47.2	29.1	24.4	427
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	RC-04	RC-04	RC-04
Sample Name:	RC04-254-264.5-050219	RC04-254-264.5-050219 (2)	RC04-265.5-276-050219	RC04-265.5-276-050219 (2)	RC04-148-SWL-050419
Sample Date:	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/04/2019
Depth:	254-264.5 ft bgs	254-264.5 ft bgs	265.5-276 ft bgs	265.5-276 ft bgs	148 ft bgs
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	34.0	33.9	38.8	43.6
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.26	<0.26
Chromium (dissolved)	µg/L	<0.49	<0.49	<0.49	0.69 J
Cobalt (dissolved)	µg/L	7.1 J	7.3 J	2.1 J	3.0 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	4.9 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	6.2 J	6.5 J	3.8 J	13.0 J
Nickel (dissolved)	µg/L	6.6 J	7.0 J	2.6 J	3.3 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	2.9 J	2.9 J	1.2 J	2.6 J
Zinc (dissolved)	µg/L	388	292	267	2360

Table 3

**Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Location ID:	RC-04	RC-04	RC-04	RC-04	RC-04
Sample Name:	RC04-254-264.5-050219	RC04-254-264.5-050219 (2)	RC04-265.5-276-050219	RC04-265.5-276-050219 (2)	RC04-148-SWL-050419
Sample Date:	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/04/2019
Depth:	254-264.5 ft bgs	254-264.5 ft bgs	265.5-276 ft bgs	265.5-276 ft bgs	148 ft bgs

Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	164	164	160	167	165
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	1.9	1.8	2.4	1.9	8.2
Nitrate (as N)	mg/L	<0.012 J	<0.012 J	<0.012	<0.012	0.19 J
Nitrite/Nitrate	mg/L	<0.018	<0.018	<0.018	<0.018	<0.018
Sulfate	mg/L	6.8	6.4	6.3	6.5	9.1
Sulfide	mg/L	<0.0054	0.0063 J	0.0078 J	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	206	207	216	213	210
Total organic carbon (TOC)	mg/L	0.57 J	0.51 J	<0.39	0.82 J	2.6

Notes:

< - Not detected at the associated reporting limit

ft bgs - Feet below ground surface

J - Estimated concentration

< () J - Not detected; associated reporting limit is estimated

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	RC04-254-264.5-050219	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	RC04-254-264.5-050219 (2)	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	RC04-148-SWL-050419	48 hours	>96 hours	Nitrate (as N)	0.19 J	mg/L

Notes:

- J - Estimated concentration
<() J - Not detected; associated reporting limit is estimated

Table 5

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 May 2019**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	Acetone	05/08/2019	152	60-137	RC04-148-SWL-050419	28.8 J	µg/L

Notes:


- LCS - Laboratory Control Sample
 J - Estimated concentration
 VOCs - Volatile Organic Compounds



Memorandum

June 13, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/279-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10475648, 10475929, 10476170 and 10476537
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Basalt Packer Sampling at the Cenex Harvest Lease Site in Freeman, Washington during May 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at a low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.



The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". The MS samples had low sulfide recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 6).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of three trip blank samples and two field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, three trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of two analytes present at low concentrations. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 7).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments			
							Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs				
RC02-SWL-142-052119	RC-02	Water	142	--	05/21/2019	08:15	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
RC02-SWL-142-052119(2)	RC-02	Water	142	--	05/21/2019	08:45	X	X	X	X	X	X	X	X	X	X	X	X	X	
RC02-192-TD-052219	RC-02	Water	192	221	05/22/2019	11:10	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
RC02-192-TD-052219(2)	RC-02	Water	192	221	05/22/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
DUP1-052219	RC-02	Water	192	221	05/22/2019	08:00	X	X	X	X	X	X	X	X	X	X	X	X	X	FD (RC02-192-TD-052219(2))
RC02-145.5-156-052419	RC-02	Water	145.5	156	05/24/2019	15:05	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
RC02-145.5-156-052419 (2)	RC-02	Water	145.5	156	05/24/2019	16:00	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW26-052319	RC-03	Water	225	--	05/23/2019	18:00	X	X	X	X	X	X	X	X	X	X	X	X	X	DUP
DUP2-052319	RC-03	Water	225	--	05/23/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (MW26-052319)
RC04-282-292.5-051819	RC-04	Water	282	292.5	05/18/2019	14:15	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
RC04-282-292.5-051819(2)	RC-04	Water	282	292.5	05/18/2019	15:15	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Potable Water	Rock Core Water Truck	Water	--	--	05/19/2019	09:30														X
Potable Water-Filtered	Rock Core Water Truck	Water	--	--	05/19/2019	09:35														X
TB-051819	--	Water	--	--	05/18/2019	--														X
TB-052119	--	Water	--	--	05/21/2019	--														X
TB-052219	--	Water	--	--	05/22/2019	--														X

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

Analytical Methods
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

**Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

	Location ID:	RC-02	RC-02	RC-02	RC-02	RC-02
	Sample Name:	RC02-SWL-142-052119	RC02-SWL-142-052119(2)	RC02-192-TD-052219	RC02-192-TD-052219(2)	RC02-192-TD-052219(2)
	Sample Date:	05/21/2019	05/21/2019	05/22/2019	05/22/2019	05/22/2019
	Depth:	142 ft bgs	142 ft bgs	192-221 ft bgs	192-221 ft bgs	192-221 ft bgs Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-02	RC-02	RC-02	RC-02	RC-02
Sample Name:	RC02-SWL-142-052119	RC02-SWL-142-052119(2)	RC02-192-TD-052219	RC02-192-TD-052219(2)	RC02-192-TD-052219(2)
Sample Date:	05/21/2019	05/21/2019	05/22/2019	05/22/2019	05/22/2019
Depth:	142 ft bgs	142 ft bgs	192-221 ft bgs	192-221 ft bgs	192-221 ft bgs Duplicate

Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	9.8 J	<9.2	<9.2	<19.8 J	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.93 J	0.66 J	0.68 J	0.71 J	0.61 J
Carbon tetrachloride	µg/L	411	313	253	244	255
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	33.3	26.5	18.1	16.8	16.6
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3
Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	RC-02	RC-02	RC-02	RC-02	RC-02
	Sample Name:	RC02-SWL-142-052119	RC02-SWL-142-052119(2)	RC02-192-TD-052219	RC02-192-TD-052219(2)	DUP1-052219
	Sample Date:	05/21/2019	05/21/2019	05/22/2019	05/22/2019	05/22/2019
	Depth:	142 ft bgs	142 ft bgs	192-221 ft bgs	192-221 ft bgs	192-221 ft bgs Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	5.7	7.4	11.9	7.6	7.1
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-02	RC-02	RC-02	RC-02	RC-02
Sample Name:	RC02-SWL-142-052119	RC02-SWL-142-052119(2)	RC02-192-TD-052219	RC02-192-TD-052219(2)	RC02-192-TD-052219(2)
Sample Date:	05/21/2019	05/21/2019	05/22/2019	05/22/2019	05/22/2019
Depth:	142 ft bgs	142 ft bgs	192-221 ft bgs	192-221 ft bgs	192-221 ft bgs Duplicate
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	--	<3.0
Ethene	µg/L	<2.9	<2.9	--	<2.9
Methane	µg/L	<4.9	<4.9	--	<4.9
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	3.9 J	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	15.4	17.2	26.0	25.0
Beryllium (dissolved)	µg/L	0.21 J	<0.12	<0.51 J	<0.35 J
Cadmium (dissolved)	µg/L	<0.26	<0.26	<0.56 J	<0.26
Chromium (dissolved)	µg/L	<1.4 J	<0.49	<0.49	<0.49
Cobalt (dissolved)	µg/L	<0.50	<0.50	<1.7 J	<2.6 J
Copper (dissolved)	µg/L	5.9 J	<1.2	9.3 J	1.3 J
Lead (dissolved)	µg/L	<2.0	<2.0	2.4 J	2.4 J
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	8.9 J	23.6	2.0 J	4.4 J
Nickel (dissolved)	µg/L	2.1 J	1.2 J	5.7 J	1.5 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	RC-02	RC-02	RC-02	RC-02	RC-02
	Sample Name:	RC02-SWL-142-052119	RC02-SWL-142-052119(2)	RC02-192-TD-052219	RC02-192-TD-052219(2)	DUP1-052219
	Sample Date:	05/21/2019	05/21/2019	05/22/2019	05/22/2019	05/22/2019
	Depth:	142 ft bgs	142 ft bgs	192-221 ft bgs	192-221 ft bgs	192-221 ft bgs Duplicate
Parameters	Unit					
Metals (Continued)						
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38	<0.38
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	<5.7 J	<4.6 J	8.4 J	9.0 J	9.2 J
Zinc (dissolved)	µg/L	834	470	777	647	647
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	178	177	167	161	171
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	9.1	8.9	5.5	5.5	5.5
Nitrate (as N)	mg/L	5.3	3.8	3.8	3.8	3.8
Nitrite/Nitrate	mg/L	4.9	3.5	3.7	3.6	3.5
Sulfate	mg/L	22.6	18.3	22.4	22.3	22.2
Sulfide	mg/L	<0.0054 J	<0.0054 J	<0.0054 J	<0.0054 J	<0.0054 J
Total dissolved solids (TDS)	mg/L	297	279	277	274	273
Total organic carbon (TOC)	mg/L	1.1	1.4	0.87 J	0.94 J	0.77 J

Table 3

**Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

	Location ID:	RC-02	RC-02	RC-03	RC-03
	Sample Name:	RC02-145.5-156-052419	RC02-145.5-156-052419 (2)	MW26-052319	DUP2-052319
	Sample Date:	05/24/2019	05/24/2019	05/23/2019	05/23/2019
	Depth:	145.5-156 ft bgs	145.5-156 ft bgs	225 ft bgs	225 ft bgs Duplicate
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-02	RC-02	RC-03	RC-03
Sample Name:	RC02-145.5-156-052419	RC02-145.5-156-052419 (2)	MW26-052319	DUP2-052319
Sample Date:	05/24/2019	05/24/2019	05/23/2019	05/23/2019
Depth:	145.5-156 ft bgs	145.5-156 ft bgs	225 ft bgs	225 ft bgs Duplicate

Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.70 J	0.63 J	<0.078	<0.078
Carbon tetrachloride	µg/L	324	364	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	49.8	35.5	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-02	RC-02	RC-03	RC-03
Sample Name:	RC02-145.5-156-052419	RC02-145.5-156-052419 (2)	MW26-052319	DUP2-052319
Sample Date:	05/24/2019	05/24/2019	05/23/2019	05/23/2019
Depth:	145.5-156 ft bgs	145.5-156 ft bgs	225 ft bgs	225 ft bgs Duplicate

Parameters	Unit				
Volatile Organic Compounds (Continued)					
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	12.2	2.0	0.85	0.70
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	RC-02	RC-02	RC-03	RC-03
	Sample Name:	RC02-145.5-156-052419	RC02-145.5-156-052419 (2)	MW26-052319	DUP2-052319
	Sample Date:	05/24/2019	05/24/2019	05/23/2019	05/23/2019
	Depth:	145.5-156 ft bgs	145.5-156 ft bgs	225 ft bgs	225 ft bgs Duplicate
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	11.4	<8.9 J	29.1	28.1
Beryllium (dissolved)	µg/L	<0.12	<0.40 J	<0.12	<0.33 J
Cadmium (dissolved)	µg/L	<0.26	<0.39 J	<0.26	<0.34 J
Chromium (dissolved)	µg/L	<0.49	<0.49	0.73 J	0.53 J
Cobalt (dissolved)	µg/L	<1.1 J	<1.2 J	<0.89 J	<0.64 J
Copper (dissolved)	µg/L	<1.2	<1.2	1.4 J	2.9 J
Lead (dissolved)	µg/L	2.6 J	2.3 J	2.0 J	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	5.7 J	2.5 J	1.2 J	1.9 J
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8

Table 3
Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-02	RC-02	RC-03	RC-03
Sample Name:	RC02-145.5-156-052419	RC02-145.5-156-052419 (2)	MW26-052319	DUP2-052319
Sample Date:	05/24/2019	05/24/2019	05/23/2019	05/23/2019
Depth:	145.5-156 ft bgs	145.5-156 ft bgs	225 ft bgs	225 ft bgs Duplicate

Parameters	Unit	RC-02	RC-02	RC-03	RC-03
Metals (Continued)					
Silver (dissolved)	µg/L	<0.38	<0.38	<0.38	<0.38
Thallium (dissolved)	µg/L	<4.3	<4.3	<4.3	<4.3
Vanadium (dissolved)	µg/L	3.9 J	5.8 J	5.9 J	4.8 J
Zinc (dissolved)	µg/L	456	220	<18.6 J	24.0
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	173	162	129	123
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	8.0	7.5	1.5	1.5
Nitrate (as N)	mg/L	4.4	4.5	0.16 J	0.15 J
Nitrite/Nitrate	mg/L	4.2	2.1	0.14	0.14
Sulfate	mg/L	21.9	21.8	3.0	3.2
Sulfide	mg/L	<0.0054 J	<0.0054 J	<0.027 J	<0.027 J
Total dissolved solids (TDS)	mg/L	273	283	208	233
Total organic carbon (TOC)	mg/L	1.3	1.0	<2.0	2.3 J

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	Rock Core Water Truck	Rock Core Water Truck
Sample Name:	RC04-282-292.5-051819	RC04-282-292.5-051819(2)	Potable Water	Potable Water-Filtered
Sample Date:	05/18/2019	05/18/2019	05/19/2019	05/19/2019
Depth:	282-292.5 ft bgs	282-292.5 ft bgs	--	--

Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	Rock Core Water Truck	Rock Core Water Truck
Sample Name:	RC04-282-292.5-051819	RC04-282-292.5-051819(2)	Potable Water	Potable Water-Filtered
Sample Date:	05/18/2019	05/18/2019	05/19/2019	05/19/2019
Depth:	282-292.5 ft bgs	282-292.5 ft bgs	--	--

Parameters	Unit				
Volatile Organic Compounds (Continued)					
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	0.68
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	Rock Core Water Truck	Rock Core Water Truck
Sample Name:	RC04-282-292.5-051819	RC04-282-292.5-051819(2)	Potable Water	Potable Water-Filtered
Sample Date:	05/18/2019	05/18/2019	05/19/2019	05/19/2019
Depth:	282-292.5 ft bgs	282-292.5 ft bgs	--	--

Parameters	Unit				
Volatile Organic Compounds (Continued)					
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	5.7	0.35 J	<0.083	0.095 J
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Location ID:	RC-04	RC-04	Rock Core Water Truck	Rock Core Water Truck
Sample Name:	RC04-282-292.5-051819	RC04-282-292.5-051819(2)	Potable Water	Potable Water-Filtered
Sample Date:	05/18/2019	05/18/2019	05/19/2019	05/19/2019
Depth:	282-292.5 ft bgs	282-292.5 ft bgs	--	--

Parameters	Unit				
Volatile Organic Compounds (Continued)					
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	--	--
Ethene	µg/L	<2.9	<2.9	--	--
Methane	µg/L	<4.9	<4.9	--	--
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	--	--
Arsenic (dissolved)	µg/L	<3.8	4.8 J	--	--
Barium (dissolved)	µg/L	39.6	40.1	--	--
Beryllium (dissolved)	µg/L	0.47 J	0.57 J	--	--
Cadmium (dissolved)	µg/L	0.46 J	0.58 J	--	--
Chromium (dissolved)	µg/L	<1.4 J	<1.4 J	--	--
Cobalt (dissolved)	µg/L	0.52 J	0.76 J	--	--
Copper (dissolved)	µg/L	1.6 J	1.5 J	--	--
Lead (dissolved)	µg/L	2.3 J	<2.0	--	--
Mercury (dissolved)	µg/L	<0.093	<0.093	--	--
Molybdenum (dissolved)	µg/L	5.9 J	6.4 J	--	--
Nickel (dissolved)	µg/L	2.0 J	1.6 J	--	--
Selenium (dissolved)	µg/L	<5.8	<5.8	--	--

Table 3

**Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Location ID:	RC-04	RC-04	Rock Core Water Truck	Rock Core Water Truck
Sample Name:	RC04-282-292.5-051819	RC04-282-292.5-051819(2)	Potable Water	Potable Water-Filtered
Sample Date:	05/18/2019	05/18/2019	05/19/2019	05/19/2019
Depth:	282-292.5 ft bgs	282-292.5 ft bgs	--	--

Parameters	Unit				
Metals (Continued)					
Silver (dissolved)	µg/L	<0.38	<0.38	--	--
Thallium (dissolved)	µg/L	<4.3	<4.3	--	--
Vanadium (dissolved)	µg/L	<2.6 J	<1.4 J	--	--
Zinc (dissolved)	µg/L	190	<16.1 J	--	--
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	161	169	--	--
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	--	--
Chloride	mg/L	2.2	1.8	--	--
Nitrate (as N)	mg/L	<0.012 J	<0.012 J	--	--
Nitrite/Nitrate	mg/L	<0.018	<0.018	--	--
Sulfate	mg/L	11.5	5.5	--	--
Sulfide	mg/L	0.014 J	<0.0054	--	--
Total dissolved solids (TDS)	mg/L	269	219	--	--
Total organic carbon (TOC)	mg/L	2.6	0.72 J	--	--

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	RC04-282-292.5-051819	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	RC04-282-292.5-051819(2)	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	MW26-052319	48 hours	>48 hours	Nitrate (as N)	0.16 J	mg/L
	DUP2-052319	48 hours	>48 hours	Nitrate (as N)	0.15 J	mg/L

Notes:

- J - Estimated concentration
<() J - Not detected; associated reporting limit is estimated

Table 5

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Chromium (dissolved)	05/24/2019	1.4 J	RC04-282-292.5-051819	1.0 J	<1.4 J	µg/L
				RC04-282-292.5-051819(2)	1.2 J	<1.4 J	µg/L
				RC02-SWL-142-052119	0.58 J	<1.4 J	µg/L
	Vanadium (dissolved)	05/24/2019	0.30 J	RC04-282-292.5-051819	2.6 J	<2.6 J	µg/L
				RC04-282-292.5-051819(2)	1.4 J	<1.4 J	µg/L
				RC02-SWL-142-052119	5.7 J	<5.7 J	µg/L
				RC02-SWL-142-052119(2)	4.6 J	<4.6 J	µg/L
	Zinc (dissolved)	05/24/2019	6.0 J	RC04-282-292.5-051819(2)	16.1 J	<16.1 J	µg/L
	Barium (dissolved)	05/31/2019	0.36 J	RC02-145.5-156-052419 (2)	8.9 J	<8.9 J	µg/L
	Beryllium (dissolved)	05/31/2019	0.33 J	RC02-192-TD-052219	0.51 J	<0.51 J	µg/L
				RC02-192-TD-052219(2)	0.35 J	<0.35 J	µg/L
				DUP1-052219	0.27 J	<0.33 J	µg/L
				RC02-145.5-156-052419 (2)	0.40 J	<0.40 J	µg/L
				DUP2-052319	0.24 J	<0.33 J	µg/L
	Cadmium (dissolved)	05/31/2019	0.34 J	RC02-192-TD-052219	0.56 J	<0.56 J	µg/L
				DUP1-052219	0.31 J	<0.34 J	µg/L
				RC02-145.5-156-052419 (2)	0.39 J	<0.39 J	µg/L
				DUP2-052319	0.30 J	<0.34 J	µg/L
	Cobalt (dissolved)	05/31/2019	0.64 J	RC02-192-TD-052219	1.7 J	<1.7 J	µg/L
				RC02-192-TD-052219(2)	2.6 J	<2.6 J	µg/L
				DUP1-052219	2.2 J	<2.2 J	µg/L
				MW26-052319	0.89 J	<0.89 J	µg/L
				RC02-145.5-156-052419	1.1 J	<1.1 J	µg/L
				RC02-145.5-156-052419 (2)	1.2 J	<1.2 J	µg/L
				DUP2-052319	0.59 J	<0.64 J	µg/L
	Zinc (dissolved)	05/31/2019	3.4 J	MW26-052319	18.6 J	<18.6 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

**Qualified Sample Data Due to Outlying Matrix Spike Recoveries
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Spiked Sample ID	Analyte	MS	<u>Control Limits</u>	Associated Sample IDs	Qualified	Units
			% Recovery	% Recovery		Result	
General Chemistry	RC02-SWL-142-052119	Sulfide	57	75-125	RC02-SWL-142-052119	<0.0054 J	mg/L
					RC02-SWL-142-052119(2)	<0.0054 J	mg/L
					RC02-192-TD-052219	<0.0054 J	mg/L
					RC02-192-TD-052219(2)	<0.0054 J	mg/L
					DUP1-052219	<0.0054 J	mg/L
	RC02-145.5-156-052419	Sulfide	49	75-125	MW26-052319	<0.027 J	mg/L
					RC02-145.5-156-052419	<0.0054 J	mg/L
					RC02-145.5-156-052419 (2)	<0.0054 J	mg/L
					DUP2-052319	<0.027 J	mg/L

Notes:

MS - Matrix Spike

<() J - Not detected; associated reporting limit is estimated

Table 7

**Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	05/22/2019	Acetone	19.8 J	RC02-192-TD-052219(2)	9.8 J	<19.8 J	µg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

June 26, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/287-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10473878 and 10479565
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during May 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample result with concentrations similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a high chemical oxygen demand (COD) recovery. Only the MS was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. An MS analysis was performed as specified in Table 1.

The MS sample was spiked with the analyte of interest, and the result was evaluated using the "Guidelines". The percent recovery was within the control limits, demonstrating acceptable analytical accuracy.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.



9. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Silva-GW-050719	Silva Well	Water	05/07/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
WS5-GW-050719	WS-5	Water	05/07/2019	08:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
TB-050719	--	Water	05/07/2019	--												Trip Blank

Notes:

- DUP - Laboratory Duplicate
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds (Continued)			
Bromodichloromethane	µg/L	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	7.1
Chlorobenzene	µg/L	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	0.47 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds (Continued)			
Toluene	µg/L	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31
Dissolved Gases			
Ethane	µg/L	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9
Methane	µg/L	<4.9	<4.9
Metals			
Antimony (dissolved)	µg/L	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8
Barium (dissolved)	µg/L	29.8	53.2
Beryllium (dissolved)	µg/L	0.13 J	0.19 J
Cadmium (dissolved)	µg/L	<0.26	<0.26
Chromium (dissolved)	µg/L	<0.49	<0.49
Cobalt (dissolved)	µg/L	<0.50	1.2 J
Copper (dissolved)	µg/L	8.2 J	8.0 J
Lead (dissolved)	µg/L	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<1.1	<1.1
Nickel (dissolved)	µg/L	1.1 J	10.7 J
Selenium (dissolved)	µg/L	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38
Thallium (dissolved)	µg/L	<4.3	<4.3
Vanadium (dissolved)	µg/L	<9.8 J	20.2
Zinc (dissolved)	µg/L	46.3	33.4

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Location ID:	Silva Well	WS-5
Sample Name:	Silva-GW-050719	WS5-GW-050719
Sample Date:	05/07/2019	05/07/2019

Parameters	Unit		
General Chemistry			
Alkalinity, total (as CaCO ₃)	mg/L	170	171
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0
Chloride	mg/L	2.3	3.1
Nitrate (as N)	mg/L	2.4	1.2
Nitrite/Nitrate	mg/L	2.4	1.1
Sulfate	mg/L	10.2	5.9
Sulfide	mg/L	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	239	230
Total organic carbon (TOC)	mg/L	1.3	0.90 J

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Vanadium (dissolved)	05/10/2019	0.37 J	Silva-GW-050719	9.8 J	<9.8 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

June 17, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/287-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10473878
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during May 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample result with concentrations similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a high chemical oxygen demand (COD) recovery. Only the MS was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. An MS analysis was performed as specified in Table 1.

The MS sample was spiked with the analyte of interest, and the result was evaluated using the "Guidelines". The percent recovery was within the control limits, demonstrating acceptable analytical accuracy.

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.



9. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Silva-GW-050719	Silva Well	Water	05/07/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
WS5-GW-050719	WS-5	Water	05/07/2019	08:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
TB-050719	--	Water	05/07/2019	--												Trip Blank

Notes:

- DUP - Laboratory Duplicate
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds (Continued)			
Bromodichloromethane	µg/L	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	7.1
Chlorobenzene	µg/L	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	0.47 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID:	Silva Well	WS-5
	Sample Name:	Silva-GW-050719	WS5-GW-050719
	Sample Date:	05/07/2019	05/07/2019
Parameters	Unit		
Volatile Organic Compounds (Continued)			
Toluene	µg/L	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31
Dissolved Gases			
Ethane	µg/L	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9
Methane	µg/L	<4.9	<4.9
Metals			
Antimony (dissolved)	µg/L	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8
Barium (dissolved)	µg/L	29.8	53.2
Beryllium (dissolved)	µg/L	0.13 J	0.19 J
Cadmium (dissolved)	µg/L	<0.26	<0.26
Chromium (dissolved)	µg/L	<0.49	<0.49
Cobalt (dissolved)	µg/L	<0.50	1.2 J
Copper (dissolved)	µg/L	8.2 J	8.0 J
Lead (dissolved)	µg/L	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<1.1	<1.1
Nickel (dissolved)	µg/L	1.1 J	10.7 J
Selenium (dissolved)	µg/L	<5.8	<5.8
Silver (dissolved)	µg/L	<0.38	<0.38
Thallium (dissolved)	µg/L	<4.3	<4.3
Vanadium (dissolved)	µg/L	<9.8 J	20.2
Zinc (dissolved)	µg/L	46.3	33.4

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Location ID:	Silva Well	WS-5
Sample Name:	Silva-GW-050719	WS5-GW-050719
Sample Date:	05/07/2019	05/07/2019

Parameters	Unit		
General Chemistry			
Alkalinity, total (as CaCO ₃)	mg/L	170	171
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0
Chloride	mg/L	2.3	3.1
Nitrate (as N)	mg/L	2.4	1.2
Nitrite/Nitrate	mg/L	2.4	1.1
Sulfate	mg/L	10.2	5.9
Sulfide	mg/L	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	239	230
Total organic carbon (TOC)	mg/L	1.3	0.90 J

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Vanadium (dissolved)	05/10/2019	0.37 J	Silva-GW-050719	9.8 J	<9.8 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

June 20, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/eew/291-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10475101
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
May 2019**

1. Introduction

This document details a reduced validation of analytical results for water samples collected in support of the Residential Treatment System Sampling at the Cenex Harvest Lease Site in Freeman, Washington during May 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples and matrix spikes.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of iron present at a low concentration. The iron result for sample Freeman-ML2-CE-051519 was qualified as non-detect due to contamination as evidenced by the blank (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy with the exception of a high chloroethane recovery. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

8. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualification noted herein.

Table 1

**Sample Collection and Analysis Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>			Comments
					Hardness	Metals	VOCs	
Freeman-ML2-CE-051519	Out-of-Use Marlow Well (No. 2)	Water	05/15/2019	11:20	X	X	X	MS/MSD
Freeman-ML2-M-051519	Out-of-Use Marlow Well (No. 2)	Water	05/15/2019	11:25	X	X	X	
Freeman-ML2-I-051519	Out-of-Use Marlow Well (No. 2)	Water	05/15/2019	11:30	X	X	X	

Notes:

VOCs - Volatile Organic Compounds
MS/MSD - Matrix Spike/Matrix Spike Duplicate

Table 2

**Analytical Methods
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water

Notes:

- ⁽¹⁾ - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Freeman-ML2-CE-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-I-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-M-051519 05/15/2019
Parameters	Unit			
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Freeman-ML2-CE-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-I-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-M-051519 05/15/2019
Parameters	Unit			
Volatile Organic Compounds (Continued)				
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	1.2	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	1.3	<0.078
Carbon tetrachloride	µg/L	<0.19	28.0	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	36.7	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15

Table 3

**Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Freeman-ML2-CE-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-I-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-M-051519 05/15/2019
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Dibromochloromethane	µg/L	<0.12	0.47 J	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	2.7 J	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	27.9	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12

Table 3

**Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019**

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (No. 2) Freeman-ML2-CE-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-I-051519 05/15/2019	Out-of-Use Marlow Well (No. 2) Freeman-ML2-M-051519 05/15/2019
Parameters				
	Unit			
Volatile Organic Compounds (Continued)				
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31
Metals				
Iron	µg/L	<41.2 J	10900	59.6
Manganese	µg/L	17.6	165	31.1
General Chemistry				
Hardness, calculation	µg/L	18300	221000	18500

Notes:

< - Not detected at the associated reporting limit

< () J - Not detected; associated reporting limit is estimated

J - Estimated concentration

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
May 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Iron	05/17/2019	5.7 J	Freeman-ML2-CE-051519	41.2 J	<41.2 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

August 5, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From: Jeffrey Cloud/cs/332-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

Subject: Analytical Results and Reduced Validation of Reports 10479205, 10479213, 10479214, 10479215, 10479216, 10479596, 10479599, 10479600, 10479602, 10479603, 10479604, 10479606, 10479607, 10480558, 10480825, 10481000, 10481249, 10481444, 10481445 and 10481482
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
June 2019

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during June 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with a few exceptions. Where the holding time was exceeded the associated sample results were qualified as estimated. Where the holding time was exceeded by more than two times the associated sample detections were qualified as estimated and the associated non-detect result was rejected. A summary of the qualifications and exception is presented in Table 4.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C). One cooler was received by the laboratory with a temperature of 9.8°C. The associated sample results were qualified as estimated (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 6).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix



effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 7).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where high acrolein recoveries were found the associated sample result was non-detect and was not impacted.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where a high recoveries were found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 8).



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with a few exceptions. Where a low sulfide recovery was found the associated sample results were qualified as estimated due to the implied low bias. Where extremely low sulfide recoveries were found the associated sample detection was qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated (see Table 8).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of seven trip blank samples and five field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, seven trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, five field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.



10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

The methane result for sample W20-GW-062819 was reported outside of the upper end of the instrument calibration range and was qualified as estimated (see Table 9).

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments		
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs			
Asher-GW-061319	Asher Well	Water	06/13/2019	09:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
AtwoodH-GW-061719	Atwood House	Water	06/17/2019	10:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
AtwoodS-GW-061719	Atwood Shop	Water	06/17/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Lang-GW-061719	Lang Well	Water	06/17/2019	12:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Lashaw-GW-061719	Lashaw Well	Water	06/17/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	X	DUP
LashawAg-GW-061719	Lashaw Well (Agricultural)	Water	06/17/2019	12:15	X	X	X	X	X	X	X	X	X	X	X	X	DUP
Marlow-GW-061719	Marlow Well	Water	06/17/2019	13:15	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Marlow2-GW-062719	Out-of-Use Marlow Well (No. 2)	Water	06/27/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW1D-GW-062619	MW-1D	Water	06/26/2019	08:05	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW1S-GW-062719	MW-1S	Water	06/27/2019	12:30	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW2D-GW-062619	MW-2D	Water	06/26/2019	08:55	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW3D-GW-062619	MW-3D	Water	06/26/2019	14:55	X	X	X	X	X	X	X	X	X	X	X	X	FD (MW3D-GW-062619)
FD3-GW-062619	MW-3D	Water	06/26/2019	--	X	X	X	X	X	X	X	X	X	X	X	X	FD (MW3D-GW-062619)
MW4D-GW-062619	MW-4D	Water	06/26/2019	13:40	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW5D-GW-062519	MW-5D	Water	06/25/2019	09:35	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW6D-GW-062619	MW-6D	Water	06/26/2019	10:05	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD2-GW-062619	MW-6D	Water	06/26/2019	--	X	X	X	X	X	X	X	X	X	X	X	X	FD (MW6D-GW-062619)
MW6S-GW-062719	MW-6S	Water	06/27/2019	07:40	X	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW6U-GW-062619	MW-6U	Water	06/26/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW7S-GW-062719	MW-7S	Water	06/27/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW8S-GW-062719	MW-8S	Water	06/27/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9D-GW-062419	MW-9D	Water	06/24/2019	15:35	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9S-GW-062719	MW-9S	Water	06/27/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9U-GW-062419	MW-9U	Water	06/24/2019	12:25	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD1-GW-062419	MW-9U	Water	06/24/2019	--	X	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (MW9U-GW-062419)

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW10S-GW-062719	MW-10S	Water	06/27/2019	09:15	X	X	X	X	X	X	X	X	X	X	X	
MW11S-GW-062719	MW-11S	Water	06/27/2019	08:20	X	X	X	X	X	X	X	X	X	X	X	
MW12S-GW-062719	MW-12S	Water	06/27/2019	08:45	X	X	X	X	X	X	X	X	X	X	X	
MW13S-GW-062819	MW-13S	Water	06/28/2019	07:55	X	X	X	X	X	X	X	X	X	X	X	DUP - MS
FD5-GW-062819	MW-13S	Water	06/28/2019	--	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD - FD (MW13S-GW-062819)
MW14D-GW-062619	MW-14D	Water	06/26/2019	16:00	X	X	X	X	X	X	X	X	X	X	X	
MW15D-GW-062519	MW-15D	Water	06/25/2019	15:10	X	X	X	X	X	X	X	X	X	X	X	
MW16D-GW-062519	MW-16D	Water	06/25/2019	13:15	X	X	X	X	X	X	X	X	X	X	X	
MW17D-GW-062519	MW-17D	Water	06/25/2019	08:25	X	X	X	X	X	X	X	X	X	X	X	
MW18D-GW-062519	MW-18D	Water	06/25/2019	14:10	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW19D-GW-062719	MW-19D	Water	06/27/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	
MW-FD3-GW-062719	MW-19D	Water	06/27/2019	--	X	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (MW19D-GW-062719)
MW20D-GW-062519	MW-20D	Water	06/25/2019	10:40	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW21D-GW-062519	MW-21D	Water	06/25/2019	12:15	X	X	X	X	X	X	X	X	X	X	X	
MW24S-GW-062719	MW-24S	Water	06/27/2019	11:10	X	X	X	X	X	X	X	X	X	X	X	
MW25S-GW-062719	MW-25S	Water	06/27/2019	10:45	X	X	X	X	X	X	X	X	X	X	X	
Randall-GW-061719	Randall Well	Water	06/17/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	DUP
Reed-GW-061319	Reed Well (W30)	Water	06/13/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	
Silva-GW-061319	Silva Well	Water	06/13/2019	09:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
Stark-GW-061319	Stark Well (W15)	Water	06/13/2019	10:30	X	X	X	X	X	X	X	X	X	X	X	
Thorson-GW-061719	Thorson Well	Water	06/17/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	
W20-GW-062819	Out-of-Use Marlow Well (W20)	Water	06/28/2019	10:20	X	X	X	X	X	X	X	X	X	X	X	
W26-GW-062819	Out-of-Use Freeman School Well (W26)	Water	06/28/2019	08:50	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
WS5-GW-061719	WS-5	Water	06/17/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
TB-061319	--	Water	06/13/2019	--											X	Trip Blank

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments		
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs			
TB-061719	--	Water	06/17/2019	--												X	Trip Blank
Trip Blank 1	--	Water	06/24/2019	--												X	Trip Blank
Trip Blank 1	--	Water	06/25/2019	--												X	Trip Blank
TRIP BLANK 1	--	Water	06/26/2019	--												X	Trip Blank
TRIP BLANK 1	--	Water	06/27/2019	--												X	Trip Blank
TRIP BLANK 1	--	Water	06/28/2019	--												X	Trip Blank

Notes:

- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Sample Name:	Asher-GW-061319	AtwoodH-GW-061719	AtwoodS-GW-061719	Lang-GW-061719	Lashaw-GW-061719	LashawAg-GW-061719
Sample Date:	06/13/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019

Parameters	Unit	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Sample Name:	Asher-GW-061319	AtwoodH-GW-061719	AtwoodS-GW-061719	Lang-GW-061719	Lashaw-GW-061719	LashawAg-GW-061719
Sample Date:	06/13/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	0.51	2.8
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	2.7
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Sample Name:	Asher-GW-061319	AtwoodH-GW-061719	AtwoodS-GW-061719	Lang-GW-061719	Lashaw-GW-061719	LashawAg-GW-061719
Sample Date:	06/13/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Sample Name:	Asher-GW-061319	AtwoodH-GW-061719	AtwoodS-GW-061719	Lang-GW-061719	Lashaw-GW-061719	LashawAg-GW-061719
Sample Date:	06/13/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	80.2	44.0	31.4	14.6	9.7 J
Beryllium (dissolved)	µg/L	0.18 J	<1.0 J	<0.44 J	<0.44 J	<0.44 J
Cadmium (dissolved)	µg/L	<0.28	<1.2 J	<0.69 J	<0.28	<0.75 J
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.50	2.5 J	1.5 J	<0.50	1.3 J
Copper (dissolved)	µg/L	39.0	18.2	452	5.2 J	1.8 J
Lead (dissolved)	µg/L	2.9 J	2.9 J	5.9 J	2.0 J	3.7 J
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	4.2 J	6.4 J	<1.1	2.2 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	10 J	2.2 J	9.6 J	6.0 J	12.3 J
Zinc (dissolved)	µg/L	22.0	47.7	1830	14.9 J	111

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	Asher Well	Atwood House	Atwood Shop	Lang Well	Lashaw Well	Lashaw Well (Agricultural)
Sample Name:	Asher-GW-061319	AtwoodH-GW-061719	AtwoodS-GW-061719	Lang-GW-061719	Lashaw-GW-061719	LashawAg-GW-061719
Sample Date:	06/13/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019

Parameters	Unit						
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	233	150	159	202	154	195
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	9.2	1.3	1.5	1.7	1.7	3.6
Nitrate (as N)	mg/L	6.0 J	0.17	1.2	0.43	2.3	0.16
Nitrite/Nitrate	mg/L	6.6 J	0.20	1.3	0.47	2.3	0.16
Sulfate	mg/L	40.6 J	4.1	4.6	2.3	6.6	7.1
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	384	196	221	248	214	238
Total organic carbon (TOC)	mg/L	1.3	0.62 J	1.6	0.51 J	0.67 J	0.95 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
	Sample Name:	Marlow-GW-061719	Marlow2-GW-062719	MW1D-GW-062619	MW1S-GW-062719	MW2D-GW-062619	MW3D-GW-062619
	Sample Date:	06/17/2019	06/27/2019	06/26/2019	06/27/2019	06/26/2019	06/26/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	33.7 J	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19 J
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3
Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
	Sample Name:	Marlow-GW-061719	Marlow2-GW-062719	MW1D-GW-062619	MW1S-GW-062719	MW2D-GW-062619	MW3D-GW-062619
	Sample Date:	06/17/2019	06/27/2019	06/26/2019	06/27/2019	06/26/2019	06/26/2019
Parameters	Unit						
Volatile Organic Compounds (Continued)							
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	0.52	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.57 J	0.20 J	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	109	5.9	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	7.7	21.3	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow-GW-061719	Marlow2-GW-062719	MW1D-GW-062619	MW1S-GW-062719	MW2D-GW-062619	MW3D-GW-062619
Sample Date:	06/17/2019	06/27/2019	06/26/2019	06/27/2019	06/26/2019	06/26/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	1.5	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	134	<1.2	<1.2	<1.2 J
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3
Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
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Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow-GW-061719	Marlow2-GW-062719	MW1D-GW-062619	MW1S-GW-062719	MW2D-GW-062619	MW3D-GW-062619
Sample Date:	06/17/2019	06/27/2019	06/26/2019	06/27/2019	06/26/2019	06/26/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	17.2	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	9.4 J	<3.8	<3.8
Barium (dissolved)	µg/L	29.1	20.1	69.4	195	45.5
Beryllium (dissolved)	µg/L	<0.44 J	<0.16 J	<0.12	<0.14 J	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	2.7 J	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	1.4 J	0.83 J	<0.50	1.2 J	0.87 J
Copper (dissolved)	µg/L	6.6 J	118	<1.2	1.3 J	<1.2
Lead (dissolved)	µg/L	2.8 J	<2.0	<2.0	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	0.28	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	10.5 J	<3.8	11.9 J
Nickel (dissolved)	µg/L	<1.1	17.7 J	2.9 J	1.2 J	2.4 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	9.1 J	0.74 J	1.1 J	9.4 J	1.3 J
Zinc (dissolved)	µg/L	31.2	1630	11.8 J	11.2 J	9.5 J

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
Sample Name:	Marlow-GW-061719	Marlow2-GW-062719	MW1D-GW-062619	MW1S-GW-062719	MW2D-GW-062619	MW3D-GW-062619
Sample Date:	06/17/2019	06/27/2019	06/26/2019	06/27/2019	06/26/2019	06/26/2019

Parameters	Unit	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D	MW-3D
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	165	254	193	433	141	139
Chemical oxygen demand (COD)	mg/L	380	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	18.0	9.5 J	1.9	7.4 J	1.6	1.6
Nitrate (as N)	mg/L	3.8	<0.012	0.13	0.17	0.040 J	0.14
Nitrite/Nitrate	mg/L	3.7	<0.018	0.11	0.19	<0.018	0.14
Sulfate	mg/L	13.6	5.1	4.0	33.6	6.2	3.5
Sulfide	mg/L	<0.0054	R	<0.0054 J	R	<0.0054 J	<0.0054 J
Total dissolved solids (TDS)	mg/L	287	278	236	460	203	207
Total organic carbon (TOC)	mg/L	0.91 J	1.6	1.4	3.5	4.2	1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6D	MW-6S
Sample Name:	FD3-GW-062619	MW4D-GW-062619	MW5D-GW-062519	MW6D-GW-062619	FD2-GW-062619	MW6S-GW-062719
Sample Date:	06/26/2019 Duplicate	06/26/2019	06/25/2019	06/26/2019	06/26/2019 Duplicate	06/27/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22 J	<0.22	<0.22 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19 J	<0.19	<0.19	<0.19 J
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
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Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6D	MW-6S
Sample Name:	FD3-GW-062619	MW4D-GW-062619	MW5D-GW-062519	MW6D-GW-062619	FD2-GW-062619	MW6S-GW-062719
Sample Date:	06/26/2019 Duplicate	06/26/2019	06/25/2019	06/26/2019	06/26/2019 Duplicate	06/27/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2 J	<1.2	<1.2 J
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	3.2	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	0.84 J	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6D	MW-6S
Sample Name:	FD3-GW-062619	MW4D-GW-062619	MW5D-GW-062519	MW6D-GW-062619	FD2-GW-062619	MW6S-GW-062719
Sample Date:	06/26/2019 Duplicate	06/26/2019	06/25/2019	06/26/2019	06/26/2019 Duplicate	06/27/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2 J	<1.2 J	<1.2	<1.2	<1.2 J
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	0.12 J	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6D	MW-6S
Sample Name:	FD3-GW-062619	MW4D-GW-062619	MW5D-GW-062519	MW6D-GW-062619	FD2-GW-062619	MW6S-GW-062719
Sample Date:	06/26/2019 Duplicate	06/26/2019	06/25/2019	06/26/2019	06/26/2019 Duplicate	06/27/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	4.9 J	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	48.9	84.5	92.1	6.4 J	6.5 J
Beryllium (dissolved)	µg/L	0.28 J	0.13 J	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	6.9 J	1.7 J	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.50	5.9 J	0.91 J	<0.50	<0.50
Copper (dissolved)	µg/L	1.5 J	3.7 J	<1.2	<1.2	1.6 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	3.8 J	6.2 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	3.1 J	6.2 J	7.5 J	5.1 J	5.2 J
Zinc (dissolved)	µg/L	10.7 J	10.8 J	<9.9 J	<6.3	<6.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6D	MW-6S
Sample Name:	FD3-GW-062619	MW4D-GW-062619	MW5D-GW-062519	MW6D-GW-062619	FD2-GW-062619	MW6S-GW-062719
Sample Date:	06/26/2019 Duplicate	06/26/2019	06/25/2019	06/26/2019	06/26/2019 Duplicate	06/27/2019
Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	139	118	217	181	151
Chemical oxygen demand (COD)	mg/L	<17.0	62.5	<17.0	<17.0	<17.0
Chloride	mg/L	2.0	7.8	1.1 J	2.1	1.4 J
Nitrate (as N)	mg/L	0.14	0.68	0.19 J	0.068 J	0.22
Nitrite/Nitrate	mg/L	0.14	0.67	0.20	0.041 J	0.25
Sulfate	mg/L	4.3	4.7	2.1	6.4	1.9
Sulfide	mg/L	<0.0054 J	<0.0054 J	R	<0.0054 J	R
Total dissolved solids (TDS)	mg/L	205	325	268	231	194
Total organic carbon (TOC)	mg/L	0.72 J	9.4	0.67 J	0.51 J	1.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
Sample Name:	MW6U-GW-062619	MW7S-GW-062719	MW8S-GW-062719	MW9D-GW-062419	MW9S-GW-062719	MW9U-GW-062419
Sample Date:	06/26/2019	06/27/2019	06/27/2019	06/24/2019	06/27/2019	06/24/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	0.24 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	34.8 J	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
Sample Name:	MW6U-GW-062619	MW7S-GW-062719	MW8S-GW-062719	MW9D-GW-062419	MW9S-GW-062719	MW9U-GW-062419
Sample Date:	06/26/2019	06/27/2019	06/27/2019	06/24/2019	06/27/2019	06/24/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.65 J	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	46.1	1.5	133	119	286
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	2.2	<0.45	42.6	4.4	48.4
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
Sample Name:	MW6U-GW-062619	MW7S-GW-062719	MW8S-GW-062719	MW9D-GW-062419	MW9S-GW-062719	MW9U-GW-062419
Sample Date:	06/26/2019	06/27/2019	06/27/2019	06/24/2019	06/27/2019	06/24/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2 J	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	1.2	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
Sample Name:	MW6U-GW-062619	MW7S-GW-062719	MW8S-GW-062719	MW9D-GW-062419	MW9S-GW-062719	MW9U-GW-062419
Sample Date:	06/26/2019	06/27/2019	06/27/2019	06/24/2019	06/27/2019	06/24/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	23.4	<4.9	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	6.4 J	7.4 J	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	73.7	75.2	33.6	26.8	21.8
Beryllium (dissolved)	µg/L	0.33 J	<0.12	<0.12	0.26 J	<0.36 J
Cadmium (dissolved)	µg/L	<0.28	0.50 J	<0.28	<0.28	0.41 J
Chromium (dissolved)	µg/L	3.3 J	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	2.2 J	2.8 J	1.9 J	1.8 J	1.1 J
Copper (dissolved)	µg/L	3.7 J	1.8 J	<1.2	<1.2	1.3 J
Lead (dissolved)	µg/L	4.5 J	4.8 J	<2.0	<2.0	<2.0
Mercury (dissolved)	µg/L	0.85	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	2.9 J	3.5 J	1.6 J	2.9 J	2.3 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	16.2	2.2 J	2.0 J	8.1 J	1.9 J
Zinc (dissolved)	µg/L	18.6 J	51.0	17.0 J	<7.3 J	12.5 J

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
Sample Name:	MW6U-GW-062619	MW7S-GW-062719	MW8S-GW-062719	MW9D-GW-062419	MW9S-GW-062719	MW9U-GW-062419
Sample Date:	06/26/2019	06/27/2019	06/27/2019	06/24/2019	06/27/2019	06/24/2019

Parameters	Unit	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9U
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	218	107	127	170	79.5	165
Chemical oxygen demand (COD)	mg/L	75.3	107	<17.0	<17.0	<17.0	42.7 J
Chloride	mg/L	9.5	19.4 J	3.2 J	11.4 J	69.0 J	15.1 J
Nitrate (as N)	mg/L	1.1	3.4	8.4	4.6	13.8	5.0
Nitrite/Nitrate	mg/L	1.0	3.9	10.9	4.5	15.4	4.6
Sulfate	mg/L	6.0	22.9	22.2	36.6 J	60.5	33.4 J
Sulfide	mg/L	<0.0054 J	R	R	R	R	R
Total dissolved solids (TDS)	mg/L	415	201	275	307	397	314
Total organic carbon (TOC)	mg/L	2.7	4.4	1.7	1.2	1.7	1.7

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-13S
	Sample Name:	FD1-GW-062419	MW10S-GW-062719	MW11S-GW-062719	MW12S-GW-062719	MW13S-GW-062819	FD5-GW-062819
	Sample Date:	06/24/2019	06/27/2019	06/27/2019	06/27/2019	06/28/2019	06/28/2019
		Duplicate					Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J	<0.20 J
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J	<0.14 J
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18 J	<0.18 J
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J	<0.20 J
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21 J	<0.21 J
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26 J	<0.26 J
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J	<0.20 J
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J	<0.20 J
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7 J	<1.7 J
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24 J	<0.24 J
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J	<0.14 J
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22 J	<0.22 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27 J	<0.27 J
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12 J	<0.12 J
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070 J	<0.070 J
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3 J	<16.3 J
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19 J	<0.19	<0.19 J	<0.19 J
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99 J	<0.99 J
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-13S
Sample Name:	FD1-GW-062419	MW10S-GW-062719	MW11S-GW-062719	MW12S-GW-062719	MW13S-GW-062819	FD5-GW-062819
Sample Date:	06/24/2019	06/27/2019	06/27/2019	06/27/2019	06/28/2019	06/28/2019
	Duplicate					Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88 J	<0.88 J
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15 J	<0.15 J
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13 J	<0.13 J
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42 J	<0.42 J
Acetone	µg/L	<9.2	<9.2	<9.2	10.4 J	<9.2 J
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2 J	<1.2 J
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91 J	<0.91 J
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10 J	<0.10 J
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21 J	<0.21 J
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22 J	<0.22 J
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80 J	<0.80 J
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8 J	<1.8 J
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078 J	<0.078 J
Carbon tetrachloride	µg/L	386	<0.19	<0.19	0.56 J	0.35 J
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27 J	<0.27 J
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49 J	<0.49 J
Chloroform (Trichloromethane)	µg/L	11.0	<0.45	<0.45	<0.45 J	<0.45 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15 J	<0.15 J
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20 J	<0.20 J
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15 J	<0.15 J
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12 J	<0.12 J
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23 J	<0.23 J
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14 J	<0.14 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-13S
	Sample Name:	FD1-GW-062419	MW10S-GW-062719	MW11S-GW-062719	MW12S-GW-062719	MW13S-GW-062819	FD5-GW-062819
	Sample Date:	06/24/2019	06/27/2019	06/27/2019	06/27/2019	06/28/2019	06/28/2019
		Duplicate					Duplicate
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13 J	<0.13 J
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J	<0.14 J
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31 J	<0.31 J
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18 J	<0.18 J
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31 J	<0.31 J
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98 J	<0.98 J
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24 J	<0.24 J
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10 J	<0.10 J
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48 J	<0.48 J
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J	<0.16 J
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19 J	<0.19 J
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11 J	<0.11 J
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2 J	<1.2	<1.2 J	<1.2 J
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18 J	<0.18 J
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15 J	<0.15 J
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J	<0.17 J
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2 J	<2.2 J
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083 J	<0.083 J
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12 J	<0.12 J
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18 J	<0.18 J
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0 J	<2.0 J
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15 J	<0.15 J
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23 J	<0.23 J
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22 J	<0.22 J
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1 J	<1.1 J
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092 J	<0.092 J
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31 J	<0.31 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-13S	
Sample Name:	FD1-GW-062419	MW10S-GW-062719	MW11S-GW-062719	MW12S-GW-062719	MW13S-GW-062819	MW13S-GW-062819	
Sample Date:	06/24/2019	06/27/2019	06/27/2019	06/27/2019	06/28/2019	06/28/2019	
	Duplicate					Duplicate	
Parameters	Unit						
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0 J	<3.0 J
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9 J	<2.9 J
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9 J	<4.9 J
Metals							
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0 J	<7.0 J
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8 J	<3.8 J
Barium (dissolved)	µg/L	23.6	32.0	45.7	186	60.8 J	60.7 J
Beryllium (dissolved)	µg/L	0.12 J	<0.17 J	<0.18 J	<0.16 J	<0.38 J	<0.24 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28 J	<0.28 J
Chromium (dissolved)	µg/L	17.7	<0.66	<0.66	<0.66	1.5 J	1.4 J
Cobalt (dissolved)	µg/L	2.3 J	1.2 J	0.91 J	1.6 J	0.58 J	2.1 J
Copper (dissolved)	µg/L	<1.2	6.4 J	<1.2	<1.2	<1.2 J	<1.2 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0 J	<2.0 J
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093 J	<0.093 J
Molybdenum (dissolved)	µg/L	5.0 J	<3.8	<3.8	<3.8	<3.8 J	<3.8 J
Nickel (dissolved)	µg/L	4.7 J	<1.1	<1.1	2.2 J	2.7 J	<1.1 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8 J	<5.8 J
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40 J	<0.40 J
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5 J	<5.5 J
Vanadium (dissolved)	µg/L	8.7 J	3.8 J	7.0 J	4.2 J	10.4 J	10.2 J
Zinc (dissolved)	µg/L	<7.1 J	8.7 J	12.6 J	11.6 J	14.7 J	11.8 J

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-13S
Sample Name:	FD1-GW-062419	MW10S-GW-062719	MW11S-GW-062719	MW12S-GW-062719	MW13S-GW-062819	FD5-GW-062819
Sample Date:	06/24/2019 Duplicate	06/27/2019	06/27/2019	06/27/2019	06/28/2019	06/28/2019 Duplicate

Parameters**Unit****General Chemistry**

Alkalinity, total (as CaCO ₃)	mg/L	165	300	216	239	152 J	154 J
Chemical oxygen demand (COD)	mg/L	21.9 J	<17.0	<17.0	<17.0	<17.0 J	<17.0 J
Chloride	mg/L	16.6 J	1.1 J	1.2 J	42.5 J	1.2 J	1.2 J
Nitrate (as N)	mg/L	5.2	0.30	0.064 J	7.2	0.38 J	0.38 J
Nitrite/Nitrate	mg/L	5.0	0.39	0.055 J	6.8	0.43 J	0.42 J
Sulfate	mg/L	37.3 J	2.0	4.8	42.0	5.8 J	6.2 J
Sulfide	mg/L	R	R	R	R	<0.0054 J	<0.0054 J
Total dissolved solids (TDS)	mg/L	309	323	248	450	200 J	196 J
Total organic carbon (TOC)	mg/L	1.6	2.8	0.91 J	2.5	0.73 J	0.78 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-062619	MW15D-GW-062519	MW16D-GW-062519	MW17D-GW-062519	MW18D-GW-062519	MW19D-GW-062719
Sample Date:	06/26/2019	06/25/2019	06/25/2019	06/25/2019	06/25/2019	06/27/2019

Parameters	Unit	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropene	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22 J	<0.22 J	<0.22 J	<0.22 J	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-062619	MW15D-GW-062519	MW16D-GW-062519	MW17D-GW-062519	MW18D-GW-062519	MW19D-GW-062719
Sample Date:	06/26/2019	06/25/2019	06/25/2019	06/25/2019	06/25/2019	06/27/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2 J	<1.2 J	<1.2 J	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	7.9	<0.19	<0.19	401
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	26.2
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-062619	MW15D-GW-062519	MW16D-GW-062519	MW17D-GW-062519	MW18D-GW-062519	MW19D-GW-062719
Sample Date:	06/26/2019	06/25/2019	06/25/2019	06/25/2019	06/25/2019	06/27/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-062619	MW15D-GW-062519	MW16D-GW-062519	MW17D-GW-062519	MW18D-GW-062519	MW19D-GW-062719
Sample Date:	06/26/2019	06/25/2019	06/25/2019	06/25/2019	06/25/2019	06/27/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	6.1 J	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	25.6	10.8	61.6	69.6	10.6
Beryllium (dissolved)	µg/L	<0.12	0.30 J	0.40 J	<0.12	0.45 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	0.30 J	<0.28	0.28 J
Chromium (dissolved)	µg/L	<0.66	<0.66	0.96 J	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.50	1.6 J	1.3 J	1.3 J	0.83 J
Copper (dissolved)	µg/L	<1.2	<1.8 J	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	6.3 J	<3.8
Nickel (dissolved)	µg/L	1.2 J	1.1 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	4.7 J	10.3 J	9.8 J	1.5 J	<0.43
Zinc (dissolved)	µg/L	<6.3	<7.6 J	<6.3	<6.3	<6.3

Table 3

**Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-062619	MW15D-GW-062519	MW16D-GW-062519	MW17D-GW-062519	MW18D-GW-062519	MW19D-GW-062719
Sample Date:	06/26/2019	06/25/2019	06/25/2019	06/25/2019	06/25/2019	06/27/2019

Parameters	Unit	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	150	180	228	172	155	175
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	23.6 J	<17.0	<17.0
Chloride	mg/L	1.4	3.2	8.8	26.4	2.3	9.6 J
Nitrate (as N)	mg/L	0.053 J	2.2 J	6.8 J	<0.012 J	<0.012 J	4.7
Nitrite/Nitrate	mg/L	0.027 J	2.1	7.2	<0.018	<0.018	5.2
Sulfate	mg/L	1.9	7.0	41.6	65.3	7.8	29.5
Sulfide	mg/L	<0.0054 J	<0.0054 J	<0.0054 J	0.023 J	<0.0054 J	R
Total dissolved solids (TDS)	mg/L	216	254	374	343	193	298
Total organic carbon (TOC)	mg/L	2.1	0.70 J	1.0	6.2	0.65 J	1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW-FD3-GW-062719	MW20D-GW-062519	MW21D-GW-062519	MW24S-GW-062719	MW25S-GW-062719	Randall-GW-061719
Sample Date:	06/27/2019 Duplicate	06/25/2019	06/25/2019	06/27/2019	06/27/2019	06/17/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22 J	<0.22 J	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW-FD3-GW-062719	MW20D-GW-062519	MW21D-GW-062519	MW24S-GW-062719	MW25S-GW-062719	Randall-GW-061719
Sample Date:	06/27/2019 Duplicate	06/25/2019	06/25/2019	06/27/2019	06/27/2019	06/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	14.8 J	<9.2
Acrolein	µg/L	<1.2	<1.2 J	<1.2 J	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	0.50 J	<0.078	<0.078	0.71 J
Carbon tetrachloride	µg/L	408	23.9	<0.19	63.4	119
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	26.4	0.92 J	<0.45	37.1	44.7
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW-FD3-GW-062719	MW20D-GW-062519	MW21D-GW-062519	MW24S-GW-062719	MW25S-GW-062719	Randall-GW-061719
Sample Date:	06/27/2019 Duplicate	06/25/2019	06/25/2019	06/27/2019	06/27/2019	06/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW-FD3-GW-062719	MW20D-GW-062519	MW21D-GW-062519	MW24S-GW-062719	MW25S-GW-062719	Randall-GW-061719
Sample Date:	06/27/2019 Duplicate	06/25/2019	06/25/2019	06/27/2019	06/27/2019	06/17/2019
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	<9.7 J	19.0	70.2	95.5	20.2
Beryllium (dissolved)	µg/L	<0.13 J	0.13 J	0.60 J	<0.13 J	<0.24 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	0.43 J	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	1.1 J	1.8 J	0.96 J	5.5 J	1.6 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	4.0 J	2.1 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	2.5 J	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	3.1 J	<1.1	<1.1	2.7 J	3.0 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	6.3 J	5.1 J	0.78 J	3.9 J	1.7 J
Zinc (dissolved)	µg/L	<6.3	<8.7 J	<7.1 J	19.7 J	11.5 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW-FD3-GW-062719	MW20D-GW-062519	MW21D-GW-062519	MW24S-GW-062719	MW25S-GW-062719	Randall-GW-061719
Sample Date:	06/27/2019 Duplicate	06/25/2019	06/25/2019	06/27/2019	06/27/2019	06/17/2019

Parameters	Unit	MW-19D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	180	275	189	91.8	82.7	203
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	133	34.1 J	<17.0
Chloride	mg/L	9.6 J	6.0	2.9	375 J	86.3 J	4.4
Nitrate (as N)	mg/L	4.6	1.2 J	<0.012 J	5.9	9.0	2.0
Nitrite/Nitrate	mg/L	5.3	1.3	<0.018	6.5	10.4	2.0
Sulfate	mg/L	29.5	9.8	8.9	50.3	54.4	8.2
Sulfide	mg/L	R	R	<0.0054 J	R	R	<0.0054
Total dissolved solids (TDS)	mg/L	288	335	182	736	390	249
Total organic carbon (TOC)	mg/L	1.1	1.0	0.85 J	17.4	5.4	<0.39

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
	Sample Name:	Reed-GW-061319	Silva-GW-061319	Stark-GW-061319	Thorson-GW-061719	W20-GW-062819
	Sample Date:	06/13/2019	06/13/2019	06/13/2019	06/17/2019	06/28/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J
1,1,1,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18 J
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21 J
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26 J
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7 J
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24 J
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22 J
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27 J
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12 J
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070 J
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3 J
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19 J
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99 J
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J

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	Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
	Sample Name:	Reed-GW-061319	Silva-GW-061319	Stark-GW-061319	Thorson-GW-061719	W20-GW-062819
	Sample Date:	06/13/2019	06/13/2019	06/13/2019	06/17/2019	06/28/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88 J
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15 J
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13 J
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42 J
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2 J
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2 J
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91 J
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	0.25 J
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21 J
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22 J
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80 J
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8 J
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078 J
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19 J
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17 J
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27 J
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49 J
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15 J
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20 J
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15 J
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12 J
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16 J
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23 J
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14 J

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Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
Sample Name:	Reed-GW-061319	Silva-GW-061319	Stark-GW-061319	Thorson-GW-061719	W20-GW-062819
Sample Date:	06/13/2019	06/13/2019	06/13/2019	06/17/2019	06/28/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13 J
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14 J
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31 J
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18 J
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31 J
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16 J
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98 J
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24 J
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10 J
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48 J
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16 J
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19 J
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11 J
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2 J
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18 J
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15 J
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17 J
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2 J
Toluene	µg/L	<0.083	<0.083	<0.083	0.15 J
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12 J
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18 J
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0 J
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15 J
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23 J
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22 J
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1 J
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092 J
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31 J

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Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)	
Sample Name:	Reed-GW-061319	Silva-GW-061319	Stark-GW-061319	Thorson-GW-061719	W20-GW-062819	
Sample Date:	06/13/2019	06/13/2019	06/13/2019	06/17/2019	06/28/2019	
Parameters	Unit					
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0 J
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9 J
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	2870 J
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0 J
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8 J
Barium (dissolved)	µg/L	46.3	28.1	31.3	54.5	23.1 J
Beryllium (dissolved)	µg/L	0.13 J	<0.12	<0.12	<0.44 J	<0.12 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28 J
Chromium (dissolved)	µg/L	<0.66	0.83 J	<0.66	<0.66	<0.66 J
Cobalt (dissolved)	µg/L	<0.50	1.5 J	1.3 J	1.4 J	<0.50 J
Copper (dissolved)	µg/L	1.3 J	12.0	191	<1.2	<1.2 J
Lead (dissolved)	µg/L	2.5 J	2.9 J	<2.0	<2.0	<2.0 J
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093 J
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8 J
Nickel (dissolved)	µg/L	<1.1	1.9 J	6.0 J	2.1 J	1.5 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8 J
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40 J
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5 J
Vanadium (dissolved)	µg/L	22.6	9.1 J	4.2 J	<0.43	<0.43 J
Zinc (dissolved)	µg/L	23.4	33.4	30.8	15.4 J	<6.3 J

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June 2019

Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
Sample Name:	Reed-GW-061319	Silva-GW-061319	Stark-GW-061319	Thorson-GW-061719	W20-GW-062819
Sample Date:	06/13/2019	06/13/2019	06/13/2019	06/17/2019	06/28/2019

Parameters	Unit					
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	141	172	127	151	63.0 J
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0 J
Chloride	mg/L	1.3	2.3	1.4	1.2	1.8 J
Nitrate (as N)	mg/L	0.35 J	2.3 J	10.8 J	<0.012	R
Nitrite/Nitrate	mg/L	0.41 J	2.4 J	11.3 J	<0.018	<0.018 J
Sulfate	mg/L	6.9 J	10.6 J	14.2 J	3.5	0.54 J
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	<0.0054	0.0068 J
Total dissolved solids (TDS)	mg/L	192	247	253	203	80.0 J
Total organic carbon (TOC)	mg/L	<0.39	0.47 J	<0.39	0.41 J	3.1 J

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Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W26-GW-062819	WS5-GW-061719
Sample Date:	06/28/2019	06/17/2019

Parameters	Unit		
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	µg/L	<0.20 J	<0.20
1,1,1-Trichloroethane	µg/L	<0.14 J	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17 J	<0.17
1,1,2-Trichloroethane	µg/L	<0.18 J	<0.18
1,1-Dichloroethane	µg/L	<0.17 J	<0.17
1,1-Dichloroethene	µg/L	<0.16 J	<0.16
1,1-Dichloropropene	µg/L	<0.20 J	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21 J	<0.21
1,2,3-Trichloropropane	µg/L	<0.26 J	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20 J	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20 J	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7 J	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24 J	<0.24
1,2-Dichlorobenzene	µg/L	<0.14 J	<0.14
1,2-Dichloroethane	µg/L	<0.22 J	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27 J	<0.27
1,2-Dichloropropane	µg/L	<0.16 J	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12 J	<0.12
1,3-Dichlorobenzene	µg/L	<0.16 J	<0.16
1,3-Dichloropropane	µg/L	<0.070 J	<0.070
1,4-Dichlorobenzene	µg/L	<0.17 J	<0.17
1,4-Dioxane	µg/L	<16.3 J	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19 J	<0.19
2,2-Dichloropropane	µg/L	<0.17 J	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99 J	<0.99
2-Chlorotoluene	µg/L	<0.16 J	<0.16

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Location ID:	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W26-GW-062819	WS5-GW-061719
Sample Date:	06/28/2019	06/17/2019

Parameters	Unit		
Volatile Organic Compounds (Continued)			
2-Hexanone	µg/L	<0.88 J	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15 J	<0.15
4-Chlorotoluene	µg/L	<0.13 J	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42 J	<0.42
Acetone	µg/L	<9.2 J	<9.2
Acrolein	µg/L	<1.2 J	<1.2
Acrylonitrile	µg/L	<0.91 J	<0.91
Benzene	µg/L	<0.10 J	<0.10
Bromobenzene	µg/L	<0.21 J	<0.21
Bromodichloromethane	µg/L	<0.22 J	<0.22
Bromoform	µg/L	<0.80 J	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8 J	<1.8
Carbon disulfide	µg/L	<0.078 J	<0.078
Carbon tetrachloride	µg/L	31.8 J	5.0
Chlorobenzene	µg/L	<0.17 J	<0.17
Chlorobromomethane	µg/L	<0.27 J	<0.27
Chloroethane	µg/L	<0.49 J	<0.49
Chloroform (Trichloromethane)	µg/L	2.5 J	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16 J	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15 J	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20 J	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15 J	<0.15
Dibromochloromethane	µg/L	<0.12 J	<0.12
Dibromomethane	µg/L	<0.16 J	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23 J	<0.23
Dichlorofluoromethane	µg/L	<0.14 J	<0.14

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June 2019

Location ID:	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W26-GW-062819	WS5-GW-061719
Sample Date:	06/28/2019	06/17/2019

Parameters	Unit		
Volatile Organic Compounds (Continued)			
Diisopropyl ether	µg/L	<0.13 J	<0.13
Ethylbenzene	µg/L	<0.14 J	<0.14
Hexachlorobutadiene	µg/L	<0.31 J	<0.31
Isopropyl benzene	µg/L	0.53 J	<0.18
m&p-Xylenes	µg/L	<0.31 J	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16 J	<0.16
Methylene chloride	µg/L	<0.98 J	<0.98
N-Butylbenzene	µg/L	<0.24 J	<0.24
N-Propylbenzene	µg/L	<0.10 J	<0.10
Naphthalene	µg/L	<0.48 J	<0.48
o-Xylene	µg/L	<0.16 J	<0.16
Styrene	µg/L	<0.19 J	<0.19
tert-Amyl methyl ether	µg/L	<0.11 J	<0.11
tert-Butyl alcohol	µg/L	<1.2 J	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18
tert-Butylbenzene	µg/L	<0.15 J	<0.15
Tetrachloroethene	µg/L	<0.17 J	<0.17
Tetrahydrofuran	µg/L	<2.2 J	<2.2
Toluene	µg/L	0.14 J	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12 J	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18 J	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0 J	<2.0
Trichloroethene	µg/L	<0.15 J	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23 J	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22 J	<0.22
Vinyl acetate	µg/L	<1.1 J	<1.1
Vinyl chloride	µg/L	<0.092 J	<0.092
Xylenes (total)	µg/L	<0.31 J	<0.31

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Freeman, Washington
June 2019

Location ID:	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W26-GW-062819	WS5-GW-061719
Sample Date:	06/28/2019	06/17/2019

Parameters	Unit		
Dissolved Gases			
Ethane	µg/L	<3.0 J	<3.0
Ethene	µg/L	<2.9 J	<2.9
Methane	µg/L	<4.9 J	<4.9
Metals			
Antimony (dissolved)	µg/L	<7.0 J	<7.0
Arsenic (dissolved)	µg/L	<3.8 J	<3.8
Barium (dissolved)	µg/L	<6.5 J	50.9
Beryllium (dissolved)	µg/L	<0.19 J	<0.50 J
Cadmium (dissolved)	µg/L	0.48 J	<0.63 J
Chromium (dissolved)	µg/L	<0.66 J	<0.66
Cobalt (dissolved)	µg/L	2.0 J	1.1 J
Copper (dissolved)	µg/L	<1.2 J	13.4
Lead (dissolved)	µg/L	<2.0 J	3.5 J
Mercury (dissolved)	µg/L	<0.093 J	<0.093
Molybdenum (dissolved)	µg/L	<3.8 J	<3.8
Nickel (dissolved)	µg/L	<1.1 J	7.8 J
Selenium (dissolved)	µg/L	<5.8 J	<5.8
Silver (dissolved)	µg/L	<0.40 J	<0.40
Thallium (dissolved)	µg/L	<5.5 J	<5.5
Vanadium (dissolved)	µg/L	6.7 J	20.0
Zinc (dissolved)	µg/L	83.5 J	49.6

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Freeman, Washington
June 2019

Location ID:	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W26-GW-062819	WS5-GW-061719
Sample Date:	06/28/2019	06/17/2019

Parameters	Unit		
General Chemistry			
Alkalinity, total (as CaCO ₃)	mg/L	150 J	173
Chemical oxygen demand (COD)	mg/L	<17.0 J	<17.0
Chloride	mg/L	4.1 J	2.8
Nitrate (as N)	mg/L	2.8 J	1.0
Nitrite/Nitrate	mg/L	2.9 J	1.1
Sulfate	mg/L	9.3 J	6.2
Sulfide	mg/L	<0.0054 J	<0.0054
Total dissolved solids (TDS)	mg/L	223 J	237
Total organic carbon (TOC)	mg/L	1.1 J	0.99 J

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- J - Estimated concentration
- R - Rejected
- N - Nitrogen

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW13S-GW-062819	48 hours	>96 hours	Nitrate (as N)	0.38 J	mg/L
	FD5-GW-062819	48 hours	>96 hours	Nitrate (as N)	0.38 J	mg/L
	W26-GW-062819	48 hours	>96 hours	Nitrate (as N)	2.8 J	mg/L
	W20-GW-062819	48 hours	>96 hours	Nitrate (as N)	R	
	MW13S-GW-062819	7 days	11 days	Sulfide	<0.0054 J	mg/L
	FD5-GW-062819	7 days	11 days	Sulfide	<0.0054 J	mg/L
	W26-GW-062819	7 days	11 days	Sulfide	<0.0054 J	mg/L
	W20-GW-062819	7 days	11 days	Sulfide	0.0068 J	mg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected
- N - Nitrogen

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	MW13S-GW-062819	9.8	0-6	1,1,1,2-Tetrachloroethane	<0.20 J	µg/L
				1,1,1-Trichloroethane	<0.14 J	µg/L
				1,1,2,2-Tetrachloroethane	<0.17 J	µg/L
				1,1,2-Trichloroethane	<0.18 J	µg/L
				1,1-Dichloroethane	<0.17 J	µg/L
				1,1-Dichloroethene	<0.16 J	µg/L
				1,1-Dichloropropene	<0.20 J	µg/L
				1,2,3-Trichlorobenzene	<0.21 J	µg/L
				1,2,3-Trichloropropane	<0.26 J	µg/L
				1,2,4-Trichlorobenzene	<0.20 J	µg/L
				1,2,4-Trimethylbenzene	<0.20 J	µg/L
				1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	µg/L
				1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	µg/L
				1,2-Dichlorobenzene	<0.14 J	µg/L
				1,2-Dichloroethane	<0.22 J	µg/L
				1,2-Dichloroethene (total)	<0.27 J	µg/L
				1,2-Dichloropropane	<0.16 J	µg/L
				1,3,5-Trimethylbenzene	<0.12 J	µg/L
				1,3-Dichlorobenzene	<0.16 J	µg/L
				1,3-Dichloropropane	<0.070 J	µg/L
VOCs	MW13S-GW-062819	9.8	0-6	1,4-Dichlorobenzene	<0.17 J	µg/L
				1,4-Dioxane	<16.3 J	µg/L
				2,2,4-Trimethylpentane	<0.19 J	µg/L
				2,2-Dichloropropane	<0.17 J	µg/L
				2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	µg/L
				2-Chlorotoluene	<0.16 J	µg/L
				2-Hexanone	<0.88 J	µg/L
				2-Phenylbutane (sec-Butylbenzene)	<0.15 J	µg/L
				4-Chlorotoluene	<0.13 J	µg/L
				4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	µg/L
				Acetone	10.4 J	µg/L
				Acrolein	<1.2 J	µg/L
				Acrylonitrile	<0.91 J	µg/L
				Benzene	<0.10 J	µg/L
				Bromobenzene	<0.21 J	µg/L
				Bromodichloromethane	<0.22 J	µg/L
				Bromoform	<0.80 J	µg/L
				Bromomethane (Methyl bromide)	<1.8 J	µg/L
				Carbon disulfide	<0.078 J	µg/L
				Carbon tetrachloride	0.56 J	µg/L
Chlorobenzene	<0.17 J	µg/L				
Chlorobromomethane	<0.27 J	µg/L				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units				
VOCs	MW13S-GW-062819	9.8	0-6	Chloroethane	<0.49 J	µg/L				
				Chloroform (Trichloromethane)	<0.45 J	µg/L				
				Chloromethane (Methyl chloride)	<0.16 J	µg/L				
				cis-1,2-Dichloroethene	<0.15 J	µg/L				
				cis-1,3-Dichloropropene	<0.20 J	µg/L				
				Cymene (p-Isopropyltoluene)	<0.15 J	µg/L				
				Dibromochloromethane	<0.12 J	µg/L				
				Dibromomethane	<0.16 J	µg/L				
				Dichlorodifluoromethane (CFC-12)	<0.23 J	µg/L				
				Dichlorofluoromethane	<0.14 J	µg/L				
				Diisopropyl ether	<0.13 J	µg/L				
				Ethylbenzene	<0.14 J	µg/L				
				Hexachlorobutadiene	<0.31 J	µg/L				
				Isopropyl benzene	<0.18 J	µg/L				
				m&p-Xylenes	<0.31 J	µg/L				
				Methyl tert butyl ether (MTBE)	<0.16 J	µg/L				
				Methylene chloride	<0.98 J	µg/L				
				N-Butylbenzene	<0.24 J	µg/L				
				N-Propylbenzene	<0.10 J	µg/L				
				Naphthalene	<0.48 J	µg/L				
				o-Xylene	<0.16 J	µg/L				
				VOCs	MW13S-GW-062819	9.8	0-6	Styrene	<0.19 J	µg/L
								tert-Amyl methyl ether	<0.11 J	µg/L
tert-Butyl alcohol	<1.2 J	µg/L								
tert-Butyl ethyl ether	<0.18 J	µg/L								
tert-Butylbenzene	<0.15 J	µg/L								
Tetrachloroethene	<0.17 J	µg/L								
Tetrahydrofuran	<2.2 J	µg/L								
Toluene	<0.083 J	µg/L								
trans-1,2-Dichloroethene	<0.12 J	µg/L								
trans-1,3-Dichloropropene	<0.18 J	µg/L								
trans-1,4-Dichloro-2-butene	<2.0 J	µg/L								
Trichloroethene	<0.15 J	µg/L								
Trichlorofluoromethane (CFC-11)	<0.23 J	µg/L								
Trifluorotrchloroethane (CFC-113)	<0.22 J	µg/L								
Vinyl acetate	<1.1 J	µg/L								
Vinyl chloride	<0.092 J	µg/L								
Xylenes (total)	<0.31 J	µg/L								

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	FD5-GW-062819	9.8	0-6	1,1,1,2-Tetrachloroethane	<0.20 J	µg/L
				1,1,1-Trichloroethane	<0.14 J	µg/L
				1,1,2,2-Tetrachloroethane	<0.17 J	µg/L
	FD5-GW-062819	9.8	0-6	1,1,2-Trichloroethane	<0.18 J	µg/L
				1,1-Dichloroethane	<0.17 J	µg/L
				1,1-Dichloroethene	<0.16 J	µg/L
				1,1-Dichloropropene	<0.20 J	µg/L
				1,2,3-Trichlorobenzene	<0.21 J	µg/L
				1,2,3-Trichloropropane	<0.26 J	µg/L
				1,2,4-Trichlorobenzene	<0.20 J	µg/L
				1,2,4-Trimethylbenzene	<0.20 J	µg/L
				1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	µg/L
				1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	µg/L
				1,2-Dichlorobenzene	<0.14 J	µg/L
				1,2-Dichloroethane	<0.22 J	µg/L
				1,2-Dichloroethene (total)	<0.27 J	µg/L
				1,2-Dichloropropane	<0.16 J	µg/L
				1,3,5-Trimethylbenzene	<0.12 J	µg/L
				1,3-Dichlorobenzene	<0.16 J	µg/L
1,3-Dichloropropane	<0.070 J	µg/L				
1,4-Dichlorobenzene	<0.17 J	µg/L				
1,4-Dioxane	<16.3 J	µg/L				
2,2,4-Trimethylpentane	<0.19 J	µg/L				
2,2-Dichloropropane	<0.17 J	µg/L				
VOCs	FD5-GW-062819	9.8	0-6	2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	µg/L
				2-Chlorotoluene	<0.16 J	µg/L
				2-Hexanone	<0.88 J	µg/L
				2-Phenylbutane (sec-Butylbenzene)	<0.15 J	µg/L
				4-Chlorotoluene	<0.13 J	µg/L
				4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	µg/L
				Acetone	<9.2 J	µg/L
				Acrolein	<1.2 J	µg/L
				Acrylonitrile	<0.91 J	µg/L
				Benzene	<0.10 J	µg/L
				Bromobenzene	<0.21 J	µg/L
				Bromodichloromethane	<0.22 J	µg/L
				Bromoform	<0.80 J	µg/L
				Bromomethane (Methyl bromide)	<1.8 J	µg/L
				Carbon disulfide	<0.078 J	µg/L
				Carbon tetrachloride	0.35 J	µg/L
				Chlorobenzene	<0.17 J	µg/L

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	FD5-GW-062819	9.8	0-6	Chlorobromomethane	<0.27 J	µg/L
				Chloroethane	<0.49 J	µg/L
				Chloroform (Trichloromethane)	<0.45 J	µg/L
VOCs	FD5-GW-062819	9.8	0-6	Chloromethane (Methyl chloride)	<0.16 J	µg/L
				cis-1,2-Dichloroethene	<0.15 J	µg/L
				cis-1,3-Dichloropropene	<0.20 J	µg/L
				Cymene (p-Isopropyltoluene)	<0.15 J	µg/L
				Dibromochloromethane	<0.12 J	µg/L
				Dibromomethane	<0.16 J	µg/L
				Dichlorodifluoromethane (CFC-12)	<0.23 J	µg/L
				Dichlorofluoromethane	<0.14 J	µg/L
				Diisopropyl ether	<0.13 J	µg/L
				Ethylbenzene	<0.14 J	µg/L
				Hexachlorobutadiene	<0.31 J	µg/L
				Isopropyl benzene	<0.18 J	µg/L
				m&p-Xylenes	<0.31 J	µg/L
				Methyl tert butyl ether (MTBE)	<0.16 J	µg/L
				Methylene chloride	<0.98 J	µg/L
				N-Butylbenzene	<0.24 J	µg/L
				N-Propylbenzene	<0.10 J	µg/L
				Naphthalene	<0.48 J	µg/L
				o-Xylene	<0.16 J	µg/L
				Styrene	<0.19 J	µg/L
tert-Amyl methyl ether	<0.11 J	µg/L				
VOCs	FD5-GW-062819	9.8	0-6	tert-Butyl alcohol	<1.2 J	µg/L
				tert-Butyl ethyl ether	<0.18 J	µg/L
				tert-Butylbenzene	<0.15 J	µg/L
				Tetrachloroethene	<0.17 J	µg/L
				Tetrahydrofuran	<2.2 J	µg/L
				Toluene	<0.083 J	µg/L
				trans-1,2-Dichloroethene	<0.12 J	µg/L
				trans-1,3-Dichloropropene	<0.18 J	µg/L
				trans-1,4-Dichloro-2-butene	<2.0 J	µg/L
				Trichloroethene	<0.15 J	µg/L
				Trichlorofluoromethane (CFC-11)	<0.23 J	µg/L
				Trifluorotrchloroethane (CFC-113)	<0.22 J	µg/L
				Vinyl acetate	<1.1 J	µg/L
Vinyl chloride	<0.092 J	µg/L				
Xylenes (total)	<0.31 J	µg/L				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units	
VOCs	W26-GW-062819	9.8	0-6	1,1,1,2-Tetrachloroethane	<0.20 J	µg/L	
				1,1,1-Trichloroethane	<0.14 J	µg/L	
				1,1,2,2-Tetrachloroethane	<0.17 J	µg/L	
				1,1,2-Trichloroethane	<0.18 J	µg/L	
				1,1-Dichloroethane	<0.17 J	µg/L	
				1,1-Dichloroethene	<0.16 J	µg/L	
				1,1-Dichloropropene	<0.20 J	µg/L	
	VOCs	W26-GW-062819	9.8	0-6	1,2,3-Trichlorobenzene	<0.21 J	µg/L
					1,2,3-Trichloropropane	<0.26 J	µg/L
					1,2,4-Trichlorobenzene	<0.20 J	µg/L
					1,2,4-Trimethylbenzene	<0.20 J	µg/L
					1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	µg/L
					1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	µg/L
					1,2-Dichlorobenzene	<0.14 J	µg/L
1,2-Dichloroethane					<0.22 J	µg/L	
1,2-Dichloroethene (total)					<0.27 J	µg/L	
1,2-Dichloropropane					<0.16 J	µg/L	
1,3,5-Trimethylbenzene					<0.12 J	µg/L	
1,3-Dichlorobenzene					<0.16 J	µg/L	
1,3-Dichloropropane					<0.070 J	µg/L	
1,4-Dichlorobenzene					<0.17 J	µg/L	
VOCs	W26-GW-062819	9.8	0-6	1,4-Dioxane	<16.3 J	µg/L	
				2,2,4-Trimethylpentane	<0.19 J	µg/L	
				2,2-Dichloropropane	<0.17 J	µg/L	
				2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	µg/L	
				2-Chlorotoluene	<0.16 J	µg/L	
				2-Hexanone	<0.88 J	µg/L	
				2-Phenylbutane (sec-Butylbenzene)	<0.15 J	µg/L	
				4-Chlorotoluene	<0.13 J	µg/L	
				4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	µg/L	
				Acetone	<9.2 J	µg/L	
				Acrolein	<1.2 J	µg/L	
				Acrylonitrile	<0.91 J	µg/L	
				Benzene	<0.10 J	µg/L	
				Bromobenzene	<0.21 J	µg/L	
Bromodichloromethane	<0.22 J	µg/L					
Bromoform	<0.80 J	µg/L					
Bromomethane (Methyl bromide)	<1.8 J	µg/L					
Carbon disulfide	<0.078 J	µg/L					
Carbon tetrachloride	31.8 J	µg/L					
Chlorobenzene	<0.17 J	µg/L					

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	W26-GW-062819	9.8	0-6	Chlorobromomethane	<0.27 J	µg/L
				Chloroethane	<0.49 J	µg/L
				Chloroform (Trichloromethane)	2.5 J	µg/L
				Chloromethane (Methyl chloride)	<0.16 J	µg/L
				cis-1,2-Dichloroethene	<0.15 J	µg/L
				cis-1,3-Dichloropropene	<0.20 J	µg/L
				Cymene (p-Isopropyltoluene)	<0.15 J	µg/L
VOCs	W26-GW-062819	9.8	0-6	Dibromochloromethane	<0.12 J	µg/L
				Dibromomethane	<0.16 J	µg/L
				Dichlorodifluoromethane (CFC-12)	<0.23 J	µg/L
				Dichlorofluoromethane	<0.14 J	µg/L
				Diisopropyl ether	<0.13 J	µg/L
				Ethylbenzene	<0.14 J	µg/L
				Hexachlorobutadiene	<0.31 J	µg/L
				Isopropyl benzene	0.53 J	µg/L
				m&p-Xylenes	<0.31 J	µg/L
				Methyl tert butyl ether (MTBE)	<0.16 J	µg/L
				Methylene chloride	<0.98 J	µg/L
				N-Butylbenzene	<0.24 J	µg/L
				N-Propylbenzene	<0.10 J	µg/L
				Naphthalene	<0.48 J	µg/L
				o-Xylene	<0.16 J	µg/L
				Styrene	<0.19 J	µg/L
				tert-Amyl methyl ether	<0.11 J	µg/L
				tert-Butyl alcohol	<1.2 J	µg/L
				tert-Butyl ethyl ether	<0.18 J	µg/L
				tert-Butylbenzene	<0.15 J	µg/L
VOCs	W26-GW-062819	9.8	0-6	Tetrachloroethene	<0.17 J	µg/L
				Tetrahydrofuran	<2.2 J	µg/L
				Toluene	0.14 J	µg/L
				trans-1,2-Dichloroethene	<0.12 J	µg/L
				trans-1,3-Dichloropropene	<0.18 J	µg/L
				trans-1,4-Dichloro-2-butene	<2.0 J	µg/L
				Trichloroethene	<0.15 J	µg/L
				Trichlorofluoromethane (CFC-11)	<0.23 J	µg/L
				Trifluorotrchloroethane (CFC-113)	<0.22 J	µg/L
				Vinyl acetate	<1.1 J	µg/L
				Vinyl chloride	<0.092 J	µg/L
				Xylenes (total)	<0.31 J	µg/L

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	W20-GW-062819	9.8	0-6	1,1,1,2-Tetrachloroethane	<0.20 J	µg/L
				1,1,1-Trichloroethane	<0.14 J	µg/L
				1,1,2,2-Tetrachloroethane	<0.17 J	µg/L
				1,1,2-Trichloroethane	<0.18 J	µg/L
				1,1-Dichloroethane	<0.17 J	µg/L
				1,1-Dichloroethene	<0.16 J	µg/L
				1,1-Dichloropropene	<0.20 J	µg/L
				1,2,3-Trichlorobenzene	<0.21 J	µg/L
				1,2,3-Trichloropropane	<0.26 J	µg/L
				1,2,4-Trichlorobenzene	<0.20 J	µg/L
				1,2,4-Trimethylbenzene	<0.20 J	µg/L
				1,2-Dibromo-3-chloropropane (DBCP)	<1.7 J	µg/L
				1,2-Dibromoethane (Ethylene dibromide)	<0.24 J	µg/L
				1,2-Dichlorobenzene	<0.14 J	µg/L
	1,2-Dichloroethane	<0.22 J	µg/L			
	1,2-Dichloroethene (total)	<0.27 J	µg/L			
	1,2-Dichloropropane	<0.16 J	µg/L			
	1,3,5-Trimethylbenzene	<0.12 J	µg/L			
	1,3-Dichlorobenzene	<0.16 J	µg/L			
	1,3-Dichloropropane	<0.070 J	µg/L			
	1,4-Dichlorobenzene	<0.17 J	µg/L			
	1,4-Dioxane	<16.3 J	µg/L			
	2,2,4-Trimethylpentane	<0.19 J	µg/L			
	2,2-Dichloropropane	<0.17 J	µg/L			
	2-Butanone (Methyl ethyl ketone) (MEK)	<0.99 J	µg/L			
	2-Chlorotoluene	<0.16 J	µg/L			
	2-Hexanone	<0.88 J	µg/L			
	2-Phenylbutane (sec-Butylbenzene)	<0.15 J	µg/L			
4-Chlorotoluene	<0.13 J	µg/L				
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	<0.42 J	µg/L				
W20-GW-062819	9.8	0-6				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	W20-GW-062819	9.8	0-6	Acetone	<9.2 J	µg/L
				Acrolein	<1.2 J	µg/L
				Acrylonitrile	<0.91 J	µg/L
				Benzene	0.25 J	µg/L
				Bromobenzene	<0.21 J	µg/L
				Bromodichloromethane	<0.22 J	µg/L
				Bromoform	<0.80 J	µg/L
				Bromomethane (Methyl bromide)	<1.8 J	µg/L
				Carbon disulfide	<0.078 J	µg/L
				Carbon tetrachloride	<0.19 J	µg/L
				Chlorobenzene	<0.17 J	µg/L
				Chlorobromomethane	<0.27 J	µg/L
				Chloroethane	<0.49 J	µg/L
				Chloroform (Trichloromethane)	<0.45 J	µg/L
				Chloromethane (Methyl chloride)	<0.16 J	µg/L
				cis-1,2-Dichloroethene	<0.15 J	µg/L
				cis-1,3-Dichloropropene	<0.20 J	µg/L
				Cymene (p-Isopropyltoluene)	<0.15 J	µg/L
				Dibromochloromethane	<0.12 J	µg/L
				Dibromomethane	<0.16 J	µg/L
VOCs	W20-GW-062819	9.8	0-6	Dichlorodifluoromethane (CFC-12)	<0.23 J	µg/L
				Dichlorofluoromethane	<0.14 J	µg/L
				Diisopropyl ether	<0.13 J	µg/L
				Ethylbenzene	<0.14 J	µg/L
				Hexachlorobutadiene	<0.31 J	µg/L
				Isopropyl benzene	<0.18 J	µg/L
				m&p-Xylenes	<0.31 J	µg/L
				Methyl tert butyl ether (MTBE)	<0.16 J	µg/L
				Methylene chloride	<0.98 J	µg/L
				N-Butylbenzene	<0.24 J	µg/L
				N-Propylbenzene	<0.10 J	µg/L
				Naphthalene	<0.48 J	µg/L

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	W20-GW-062819	9.8	0-6	o-Xylene	<0.16 J	µg/L
				Styrene	<0.19 J	µg/L
				tert-Amyl methyl ether	<0.11 J	µg/L
				tert-Butyl alcohol	<1.2 J	µg/L
				tert-Butyl ethyl ether	<0.18 J	µg/L
				tert-Butylbenzene	<0.15 J	µg/L
				Tetrachloroethene	<0.17 J	µg/L
				Tetrahydrofuran	<2.2 J	µg/L
				Toluene	0.15 J	µg/L
				trans-1,2-Dichloroethene	<0.12 J	µg/L
VOCs	W20-GW-062819	9.8	0-6	trans-1,3-Dichloropropene	<0.18 J	µg/L
				trans-1,4-Dichloro-2-butene	<2.0 J	µg/L
				Trichloroethene	<0.15 J	µg/L
				Trichlorofluoromethane (CFC-11)	<0.23 J	µg/L
				Trifluorotrchloroethane (CFC-113)	<0.22 J	µg/L
				Vinyl acetate	<1.1 J	µg/L
				Vinyl chloride	<0.092 J	µg/L
				Xylenes (total)	<0.31 J	µg/L
Dissolved Gases	MW13S-GW-062819	9.8	0-6	Ethane	<3.0 J	µg/L
				Ethene	<2.9 J	µg/L
				Methane	<4.9 J	µg/L
	FD5-GW-062819	9.8	0-6	Ethane	<3.0 J	µg/L
				Ethene	<2.9 J	µg/L
				Methane	<4.9 J	µg/L
	W26-GW-062819	9.8	0-6	Ethane	<3.0 J	µg/L
				Ethene	<2.9 J	µg/L
				Methane	<4.9 J	µg/L

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
Dissolved Gases	W20-GW-062819	9.8	0-6	Ethane	<3.0 J	µg/L
				Ethene	<2.9 J	µg/L
				Methane	2870 J	µg/L
Metals	MW13S-GW-062819	9.8	0-6	Antimony (dissolved)	<7.0 J	µg/L
				Arsenic (dissolved)	<3.8 J	µg/L
				Barium (dissolved)	60.8 J	µg/L
				Beryllium (dissolved)	0.38 J	µg/L
				Cadmium (dissolved)	<0.28 J	µg/L
				Chromium (dissolved)	1.5 J	µg/L
				Cobalt (dissolved)	0.58 J	µg/L
				Copper (dissolved)	<1.2 J	µg/L
				Lead (dissolved)	<2.0 J	µg/L
				Mercury (dissolved)	<0.093 J	µg/L
				Molybdenum (dissolved)	<3.8 J	µg/L
				Nickel (dissolved)	2.7 J	µg/L
				Selenium (dissolved)	<5.8 J	µg/L
				Silver (dissolved)	<0.40 J	µg/L
				Thallium (dissolved)	<5.5 J	µg/L
				Vanadium (dissolved)	10.4 J	µg/L
Metals	FD5-GW-062819	9.8	0-6	Zinc (dissolved)	14.7 J	µg/L
				Antimony (dissolved)	<7.0 J	µg/L
				Arsenic (dissolved)	<3.8 J	µg/L
				Barium (dissolved)	60.7 J	µg/L
				Beryllium (dissolved)	0.24 J	µg/L
				Cadmium (dissolved)	<0.28 J	µg/L
				Chromium (dissolved)	1.4 J	µg/L
				Cobalt (dissolved)	2.1 J	µg/L
				Copper (dissolved)	<1.2 J	µg/L
				Lead (dissolved)	<2.0 J	µg/L
				Mercury (dissolved)	<0.093 J	µg/L
				Molybdenum (dissolved)	<3.8 J	µg/L
				Nickel (dissolved)	<1.1 J	µg/L
				Selenium (dissolved)	<5.8 J	µg/L
				Silver (dissolved)	<0.40 J	µg/L
				Thallium (dissolved)	<5.5 J	µg/L
Vanadium (dissolved)	10.2 J	µg/L				
Zinc (dissolved)	11.8 J	µg/L				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
Metals	W26-GW-062819	9.8	0-6	Antimony (dissolved)	<7.0 J	µg/L
				Arsenic (dissolved)	<3.8 J	µg/L
	W26-GW-062819	9.8	0-6	Barium (dissolved)	6.5 J	µg/L
				Beryllium (dissolved)	0.19 J	µg/L
				Cadmium (dissolved)	0.48 J	µg/L
				Chromium (dissolved)	<0.66 J	µg/L
				Cobalt (dissolved)	2.0 J	µg/L
				Copper (dissolved)	<1.2 J	µg/L
				Lead (dissolved)	<2.0 J	µg/L
				Mercury (dissolved)	<0.093 J	µg/L
				Molybdenum (dissolved)	<3.8 J	µg/L
				Nickel (dissolved)	<1.1 J	µg/L
				Selenium (dissolved)	<5.8 J	µg/L
				Silver (dissolved)	<0.40 J	µg/L
Metals	W20-GW-062819	9.8	0-6	Antimony (dissolved)	<7.0 J	µg/L
				Arsenic (dissolved)	<3.8 J	µg/L
	W20-GW-062819	9.8	0-6	Barium (dissolved)	23.1 J	µg/L
				Beryllium (dissolved)	<0.12 J	µg/L
				Cadmium (dissolved)	<0.28 J	µg/L
				Chromium (dissolved)	<0.66 J	µg/L
				Cobalt (dissolved)	<0.50 J	µg/L
				Copper (dissolved)	<1.2 J	µg/L
				Lead (dissolved)	<2.0 J	µg/L
				Mercury (dissolved)	<0.093 J	µg/L
				Molybdenum (dissolved)	<3.8 J	µg/L
				Nickel (dissolved)	1.5 J	µg/L
				Selenium (dissolved)	<5.8 J	µg/L
				Silver (dissolved)	<0.40 J	µg/L
Thallium (dissolved)	<5.5 J	µg/L				
Vanadium (dissolved)	<0.43 J	µg/L				
Zinc (dissolved)	<6.3 J	µg/L				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units				
General Chemistry	MW13S-GW-062819	9.8	0-6	Alkalinity, total (as CaCO ₃)	152 J	mg/L				
				Chemical oxygen demand (COD)	<17.0 J	mg/L				
				Chloride	1.2 J	mg/L				
				Nitrate (as N)	0.38 J	mg/L				
				Nitrite/Nitrate	0.43 J	mg/L				
				Sulfate	5.8 J	mg/L				
				Sulfide	<0.0054 J	mg/L				
				Total dissolved solids (TDS)	200 J	mg/L				
				Total organic carbon (TOC)	0.73 J	mg/L				
				General Chemistry	FD5-GW-062819	9.8	0-6	Alkalinity, total (as CaCO ₃)	154 J	mg/L
								Chemical oxygen demand (COD)	<17.0 J	mg/L
								Chloride	1.2 J	mg/L
								Nitrate (as N)	0.38 J	mg/L
Nitrite/Nitrate	0.42 J	mg/L								
Sulfate	6.2 J	mg/L								
Sulfide	<0.0054 J	mg/L								
Total dissolved solids (TDS)	196 J	mg/L								
Total organic carbon (TOC)	0.78 J	mg/L								
	W26-GW-062819	9.8	0-6					Alkalinity, total (as CaCO ₃)	150 J	mg/L
								Chemical oxygen demand (COD)	<17.0 J	mg/L
								Chloride	4.1 J	mg/L
								Nitrate (as N)	2.8 J	mg/L
				Nitrite/Nitrate	2.9 J	mg/L				
				Sulfate	9.3 J	mg/L				
				Sulfide	<0.0054 J	mg/L				
				Total dissolved solids (TDS)	223 J	mg/L				
				Total organic carbon (TOC)	1.1 J	mg/L				

Table 5

Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
	W20-GW-062819	9.8	0-6	Alkalinity, total (as CaCO ₃)	63.0 J	mg/L
				Chemical oxygen demand (COD)	<17.0 J	mg/L
				Chloride	1.8 J	mg/L
				Nitrite/Nitrate	<0.018 J	mg/L
				Sulfate	0.54 J	mg/L
				Sulfide	0.0068 J	mg/L
				Total dissolved solids (TDS)	80.0 J	mg/L
				Total organic carbon (TOC)	3.1 J	mg/L

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Beryllium (dissolved)	06/27/2019	0.44 J	WS5-GW-061719	0.50 J	<0.50 J	µg/L
				AtwoodH-GW-061719	1.0 J	<1.0 J	µg/L
				AtwoodS-GW-061719	0.34 J	<0.44 J	µg/L
				Thorson-GW-061719	0.19 J	<0.44 J	µg/L
				Lashaw-GW-061719	0.33 J	<0.44 J	µg/L
				LashawAg-GW-061719	0.23 J	<0.44 J	µg/L
				Lang-GW-061719	0.24 J	<0.44 J	µg/L
				Marlow-GW-061719	0.24 J	<0.44 J	µg/L
				Randall-GW-061719	0.13 J	<0.44 J	µg/L
	Cadmium (dissolved)	06/27/2019	0.34 J	WS5-GW-061719	0.63 J	<0.63 J	µg/L
				AtwoodH-GW-061719	1.2 J	<1.2 J	µg/L
				AtwoodS-GW-061719	0.69 J	<0.69 J	µg/L
				Lashaw-GW-061719	0.75 J	<0.75 J	µg/L
	Copper (dissolved)	06/28/2019	1.8 J	MW15D-GW-062519	1.8 J	<1.8 J	µg/L
	Zinc (dissolved)	06/28/2019	7.1 J	MW9U-GW-062419	13.6 J	<13.6 J	µg/L
				FD1-GW-062419	6.8 J	<7.1 J	µg/L
				MW9D-GW-062419	7.3 J	<7.3 J	µg/L
				MW5D-GW-062519	9.9 J	<9.9 J	µg/L
				MW20D-GW-062519	8.7 J	<8.7 J	µg/L
				MW21D-GW-062519	6.8 J	<7.1 J	µg/L
				MW15D-GW-062519	7.6 J	<7.6 J	µg/L
	Barium (dissolved)	07/11/2019	1.7 J	MW-FD3-GW-062719	9.7 J	<9.7 J	µg/L
				W26-GW-062819	6.5 J	<6.5 J	µg/L
	Beryllium (dissolved)	07/11/2019	0.12 J	MW6S-GW-062719	0.23 J	<0.23 J	µg/L
				MW11S-GW-062719	0.18 J	<0.18 J	µg/L
				MW12S-GW-062719	0.16 J	<0.16 J	µg/L
				MW10S-GW-062719	0.17 J	<0.17 J	µg/L
				MW9S-GW-062719	0.36 J	<0.36 J	µg/L
MW25S-GW-062719				0.24 J	<0.24 J	µg/L	
Metals	Beryllium (dissolved)	07/11/2019	0.12 J	MW24S-GW-062719	0.13 J	<0.13 J	µg/L
				MW1S-GW-062719	0.14 J	<0.14 J	µg/L
				MW19D-GW-062719	0.35 J	<0.35 J	µg/L
				MW-FD3-GW-062719	0.13 J	<0.13 J	µg/L
				Marlow2-GW-062719	0.16 J	<0.16 J	µg/L
				MW13S-GW-062819	0.38 J	<0.38 J	µg/L
				FD5-GW-062819	0.24 J	<0.24 J	µg/L
				W26-GW-062819	0.19 J	<0.19 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 7

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	Control Limits	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	1,2-Dichloroethane	07/03/2019	71	75-125	MW17D-GW-062519	<0.22 J	µg/L
					MW5D-GW-062519	<0.22 J	µg/L
					MW20D-GW-062519	<0.22 J	µg/L
					MW21D-GW-062519	<0.22 J	µg/L
					MW16D-GW-062519	<0.22 J	µg/L
					MW18D-GW-062519	<0.22 J	µg/L
					MW15D-GW-062519	<0.22 J	µg/L
					FD2-GW-062619	<0.22 J	µg/L
	Acrolein	07/03/2019	56	60-141	MW17D-GW-062519	<1.2 J	µg/L
					MW5D-GW-062519	<1.2 J	µg/L
					MW20D-GW-062519	<1.2 J	µg/L
					MW21D-GW-062519	<1.2 J	µg/L
					MW16D-GW-062519	<1.2 J	µg/L
					MW18D-GW-062519	<1.2 J	µg/L
					MW15D-GW-062519	<1.2 J	µg/L
					FD2-GW-062619	<1.2 J	µg/L
	2,2,4-Trimethylpentane	07/04/2019	69	72-128	MW6U-GW-062619	<0.19 J	µg/L
					MW4D-GW-062619	<0.19 J	µg/L
					MW3D-GW-062619	<0.19 J	µg/L
					FD3-GW-062619	<0.19 J	µg/L
					MW14D-GW-062619	<0.19 J	µg/L
					MW6S-GW-062719	<0.19 J	µg/L
					MW11S-GW-062719	<0.19 J	µg/L
	tert-Butyl alcohol	07/04/2019	72	75-130	MW6U-GW-062619	<1.2 J	µg/L
					MW4D-GW-062619	<1.2 J	µg/L
					MW3D-GW-062619	<1.2 J	µg/L
					FD3-GW-062619	<1.2 J	µg/L
					MW14D-GW-062619	<1.2 J	µg/L
MW6S-GW-062719					<1.2 J	µg/L	
MW11S-GW-062719					<1.2 J	µg/L	

Notes:

- LCS - Laboratory Control Sample
<() J - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW20D-GW-062519	Sulfide	11	--	--	75-125	--	MW9U-GW-062419	R	mg/L
	FD1-GW-062419							R		
MW9D-GW-062419	R									
MW17D-GW-062519	<0.023 J									
MW5D-GW-062519	R									
MW20D-GW-062519	R									
	MW18D-GW-062519	Sulfide	46	--	--	75-125	--	MW21D-GW-062519	<0.0054 J	mg/L
	MW16D-GW-062519							<0.0054 J	mg/L	
	MW18D-GW-062519							<0.0054 J	mg/L	
	MW15D-GW-062519							<0.0054 J	mg/L	
	MW1D-GW-062619							<0.0054 J	mg/L	
	MW2D-GW-062619							<0.0054 J	mg/L	
	MW6D-GW-062619							<0.0054 J	mg/L	
	FD2-GW-062619							<0.0054 J	mg/L	
	MW6U-GW-062619							<0.0054 J	mg/L	
	MW4D-GW-062619							<0.0054 J	mg/L	
	MW3D-GW-062619							<0.0054 J	mg/L	
	FD3-GW-062619							<0.0054 J	mg/L	
	MW14D-GW-062619							<0.0054 J	mg/L	
	Marlow2-GW-062719							Sulfide	2	--
	MW11S-GW-062719	R								
	MW12S-GW-062719	R								
	MW10S-GW-062719	R								
	MW9S-GW-062719	R								
	MW25S-GW-062719	R								
	MW24S-GW-062719	R								
	MW8S-GW-062719	R								
	MW7S-GW-062719	R								
	MW1S-GW-062719	R								
	MW19D-GW-062719	R								
	MW-FD3-GW-062719	R								
	Marlow2-GW-062719	R								

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery	(percent)	% Recovery	RPD				
	Silva-GW-061319	Nitrate (as N)	60	51	3	90-110	20	Silva-GW-061319	2.3 J	mg/L	
								Asher-GW-061319	6.0 J	mg/L	
									Stark-GW-061319	10.8 J	mg/L
									Reed-GW-061319	0.35 J	mg/L
		Sulfate	89	83	3	90-110	20	Silva-GW-061319	10.6 J	mg/L	
							Asher-GW-061319	40.6 J	mg/L		
								Stark-GW-061319	14.2 J	mg/L	
								Reed-GW-061319	6.9 J	mg/L	
MW9U-GW-062419	Chloride	86	86	0	90-110	20	MW9U-GW-062419	15.1 J	mg/L		
							FD1-GW-062419	16.6 J	mg/L		
							MW9D-GW-062419	11.4 J	mg/L		
		Sulfate	65	65	0	90-110	20	MW9U-GW-062419	33.4 J	mg/L	
							FD1-GW-062419	37.3 J	mg/L		
							MW9D-GW-062419	36.6 J	mg/L		
MW20D-GW-062519	Nitrate (as N)	86	88	1	90-110	20	MW17D-GW-062519	<0.012 J	mg/L		
							MW5D-GW-062519	0.19 J	mg/L		
							MW20D-GW-062519	1.2 J	mg/L		
							MW21D-GW-062519	<0.012 J	mg/L		
							MW16D-GW-062519	6.8 J	mg/L		
							MW18D-GW-062519	<0.012 J	mg/L		
							MW15D-GW-062519	2.2 J	mg/L		

Table 8

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
	Marlow2-GW-062719	Chloride	89	89	1	90-110	20	MW6S-GW-062719	1.4 J	mg/L
								MW11S-GW-062719	1.2 J	mg/L
								MW12S-GW-062719	42.5 J	mg/L
								MW10S-GW-062719	1.1 J	mg/L
								MW9S-GW-062719	69.0 J	mg/L
								MW25S-GW-062719	86.3 J	mg/L
								MW24S-GW-062719	375 J	mg/L
								MW8S-GW-062719	3.2 J	mg/L
								MW7S-GW-062719	19.4 J	mg/L
								MW1S-GW-062719	7.4 J	mg/L
								MW19D-GW-062719	9.6 J	mg/L
								MW-FD3-GW-062719	9.6 J	mg/L
								Marlow2-GW-062719	9.5 J	mg/L
	Asher-GW-061319	Nitrite/Nitrate	81	112	19	90-110	20	Silva-GW-061319	2.4 J	mg/L
								Asher-GW-061319	6.6 J	mg/L
								Stark-GW-061319	11.3 J	mg/L
								Reed-GW-061319	0.41 J	mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected
- - Not Applicable

Table 9

Qualified Sample Data Due to Exceedance of Calibration Range
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Sample ID	Analyte	Qualified Result	Units
Dissolved Gases	W20-GW-062819	Methane	2870 J	µg/L

Notes:

J - Estimated concentration



Memorandum

August 8, 2019

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**Subject: Analytical Results and Reduced Validation of Reports 10479806 and 10479809
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

1. Introduction

This document details a reduced validation of analytical results for water samples collected in support of the Residential Treatment System Sampling at the Cenex Harvest Lease Site in Freeman, Washington during June 2019. Samples were submitted to Pace Analytical Services located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spike samples, and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", United States Environmental Protection Agency (USEPA) 540-R-08-01, June 2008
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

LCS/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy with the exception of a high acetone recovery. The associated sample result was non-detect and was not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.



8. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

The total and dissolved iron results for sample Freeman-ML-Sink-061819 had a high percent difference and were qualified as estimated (see Table 4).

9. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters				Comments
					Phosphorus	Iron	Dissolved Iron	VOCs	
Freeman-ML-CE-061819	Marlow Carbon Effluent	Water	06/18/2019	09:30				X	
Freeman-ML-I-061819	Marlow Influent	Water	06/18/2019	10:00				X	
Freeman-ML-M-IR-061819	Marlow Irrigation Mid Point	Water	06/18/2019	09:45				X	
Freeman-ML-CE-IR-061819	Marlow Irrigation Carbon Effluent	Water	06/18/2019	09:35				X	
Freeman-ML-Sink-061819	Marlow Kitchen Sink	Water	06/18/2019	10:05	X	X	X		MS/MSD
Freeman-ML-M-061819	Marlow Mid Point	Water	06/18/2019	09:40				X	
Freeman-ML-FD-061819	Marlow Mid Point	Water	06/18/2019	09:50				X	FD (Freeman-ML-M-061819)
Freeman-RD-CE-061819	Randall Carbon Effluent	Water	06/18/2019	10:30				X	
Freeman-RD-CE-IR-061819	Randall Irrigation Carbon Effluent	Water	06/18/2019	10:35				X	
Freeman-RD-M-IR-061819	Randall Irrigation Mid Point	Water	06/18/2019	10:45				X	
Freeman-RD-M-061819	Randall Mid Point	Water	06/18/2019	10:40				X	
Freeman-RD-I-061819	Randall Well Influent	Water	06/18/2019	10:55				X	
TB-061819	-	Water	06/18/2019	-				X	Trip Blank

Notes:

- FD - Field Duplicate sample of sample in parenthesis
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- - Not Applicable

Table 2
Analytical Methods
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Iron	SW-846 6020B ⁽¹⁾	Water
Phosphorus	SM 4500 P F ⁽²⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Marlow Carbon Effluent Freeman-ML-CE-061819 06/18/2019	Marlow Influent Freeman-ML-I-061819 06/18/2019	Marlow Irrigation Mid Point Freeman-ML-M-IR-061819 06/18/2019	Marlow Irrigation Carbon Effluent Freeman-ML-CE-IR-061819 06/18/2019
Parameters					
Unit					
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Marlow Carbon Effluent Freeman-ML-CE-061819 06/18/2019	Marlow Influent Freeman-ML-I-061819 06/18/2019	Marlow Irrigation Mid Point Freeman-ML-M-IR-061819 06/18/2019	Marlow Irrigation Carbon Effluent Freeman-ML-CE-IR-061819 06/18/2019
Parameters					
Unit					
Volatile Organic Compounds					
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	0.36 J	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	116	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	7.9	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	0.57 J	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2

Table 3

**Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

	Location ID: Sample Name: Sample Date:	Marlow Carbon Effluent Freeman-ML-CE-061819 06/18/2019	Marlow Influent Freeman-ML-I-061819 06/18/2019	Marlow Irrigation Mid Point Freeman-ML-M-IR-061819 06/18/2019	Marlow Irrigation Carbon Effluent Freeman-ML-CE-IR-061819 06/18/2019
Parameters					
	Unit				
Volatile Organic Compounds					
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Metals					
Iron	µg/L	-	-	-	-
Iron (dissolved)	µg/L	-	-	-	-
General Chemistry					
Phosphorus	mg/L	-	-	-	-

Table 3

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Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Marlow Kitchen Sink Freeman-ML-Sink-061819 06/18/2019	Marlow Mid Point Freeman-ML-M-061819 06/18/2019	Marlow Mid Point Freeman-ML-FD-061819 06/18/2019 Duplicate	Randall Carbon Effluent Freeman-RD-CE-061819 06/18/2019
Parameters					
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	-	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	-	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	-	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	-	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	-	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	-	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	-	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	-	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	-	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	-	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	-	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	-	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	-	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	-	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	-	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	-	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	-	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	-	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	-	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	-	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	-	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	-	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	-	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	-	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	-	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	-	<0.16	<0.16	<0.16
2-Hexanone	µg/L	-	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	-	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	-	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	-	<0.42	<0.42	<0.42
Acetone	µg/L	-	<9.2	<9.2	<9.2
Acrolein	µg/L	-	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	-	<0.91	<0.91	<0.91
Benzene	µg/L	-	<0.10	<0.10	<0.10
Bromobenzene	µg/L	-	<0.21	<0.21	<0.21

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Marlow Kitchen Sink Freeman-ML-Sink-061819 06/18/2019	Marlow Mid Point Freeman-ML-M-061819 06/18/2019	Marlow Mid Point Freeman-ML-FD-061819 06/18/2019 Duplicate	Randall Carbon Effluent Freeman-RD-CE-061819 06/18/2019
Parameters					
Unit					
Volatile Organic Compounds					
Bromodichloromethane	µg/L	-	<0.22	<0.22	<0.22
Bromoform	µg/L	-	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	-	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	-	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	-	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	-	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	-	<0.27	<0.27	<0.27
Chloroethane	µg/L	-	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	-	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	-	0.44 J	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	-	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	-	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	-	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	-	<0.12	<0.12	<0.12
Dibromomethane	µg/L	-	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	-	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	-	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	-	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	-	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	-	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	-	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	-	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	-	<0.16	<0.16	<0.16
Methylene chloride	µg/L	-	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	-	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	-	<0.10	<0.10	<0.10
Naphthalene	µg/L	-	<0.48	<0.48	<0.48
o-Xylene	µg/L	-	<0.16	<0.16	<0.16
Styrene	µg/L	-	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	-	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	-	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	-	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	-	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	-	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	-	<2.2	<2.2	<2.2

Table 3

**Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

	Location ID: Sample Name: Sample Date:	Marlow Kitchen Sink Freeman-ML-Sink-061819 06/18/2019	Marlow Mid Point Freeman-ML-M-061819 06/18/2019	Marlow Mid Point Freeman-ML-FD-061819 06/18/2019 Duplicate	Randall Carbon Effluent Freeman-RD-CE-061819 06/18/2019
Parameters					
	Unit				
Volatile Organic Compounds					
Toluene	µg/L	-	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	-	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	-	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	-	<2.0	<2.0	<2.0
Trichloroethene	µg/L	-	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	-	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	-	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	-	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	-	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	-	<0.31	<0.31	<0.31
Metals					
Iron	µg/L	<15.0 J	-	-	-
Iron (dissolved)	µg/L	108 J	-	-	-
General Chemistry					
Phosphorus	mg/L	0.14	-	-	-

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Randall Irrigation Carbon Effluent Freeman-RD-CE-IR-061819 06/18/2019	Randall Irrigation Mid Point Freeman-RD-M-IR-061819 06/18/2019	Randall Mid Point Freeman-RD-M-061819 06/18/2019	Randall Well Influent Freeman-RD-I-061819 06/18/2019
Parameters					
	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

	Location ID: Sample Name: Sample Date:	Randall Irrigation Carbon Effluent Freeman-RD-CE-IR-061819 06/18/2019	Randall Irrigation Mid Point Freeman-RD-M-IR-061819 06/18/2019	Randall Mid Point Freeman-RD-M-061819 06/18/2019	Randall Well Influent Freeman-RD-I-061819 06/18/2019
Parameters	Unit				
Volatile Organic Compounds					
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	0.55 J
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	214
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	7.8
Chloromethane (Methyl chloride)	µg/L	<0.16	0.52 J	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2

Table 3

Analytical Results Summary
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID: Sample Name: Sample Date:	Randall Irrigation Carbon Effluent Freeman-RD-CE-IR-061819 06/18/2019	Randall Irrigation Mid Point Freeman-RD-M-IR-061819 06/18/2019	Randall Mid Point Freeman-RD-M-061819 06/18/2019	Randall Well Influent Freeman-RD-I-061819 06/18/2019
Parameters	Unit			
Volatile Organic Compounds				
Toluene	µg/L	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31
Metals				
Iron	µg/L	-	-	-
Iron (dissolved)	µg/L	-	-	-
General Chemistry				
Phosphorus	mg/L	-	-	-

Notes:

- < - Not detected at the associated reporting limit
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- - Not applicable

Table 4

**Qualified Sample Data Due to Discrepancies Between Total and Dissolved Results
Residential Treatment System Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Analyte	%D	Criteria (percent)	Qualified Total Result	Qualified Dissolved Result	Units
Metals	Freeman-ML-Sink-061819	Iron	151	20	<15.0 J	108 J	µg/L

Notes:


- %D - Percent Difference
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

August 12, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/340-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10480346 and 10480680
Additional Soil Borings
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
June 2019**

1. Introduction

This document details a reduced validation of analytical results for soil and groundwater samples collected in support of the Additional Soil Borings at the Cenex Harvest Lease Site in Freeman, Washington during June 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Tables 3A and 3B.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of two analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 4).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria with the exception of two high VOC surrogate recoveries. The associated non-detect results were not impacted and the associated sample detection was qualified as estimated due to the implied high bias (see Table 5).

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy with the exception of one high carbon tetrachloride recovery. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of six trip blank samples and four field duplicate sample sets.



Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, six trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, four field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 100 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is two times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Tables 3A and 3B. Non-detect results were presented as non-detect at the MDL in Tables 3A and 3B.

All soil results were reported on a dry weight basis.

10. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>			Comments
						Moisture	VOCs	TOC	
SB206-5'	SB-206	Soil	5	06/19/2019	09:40	X	X	X	DUP
SB206-10'	SB-206	Soil	10	06/19/2019	09:50	X	X	X	
SB206-15'	SB-206	Soil	15	06/19/2019	10:00	X	X	X	DUP
SB206-20'	SB-206	Soil	20	06/19/2019	10:15	X	X	X	DUP
SB206-25'	SB-206	Soil	25	06/19/2019	10:20	X	X	X	
SB206-30'	SB-206	Soil	30	06/19/2019	10:35	X	X	X	
SB206-35'	SB-206	Soil	35	06/19/2019	10:45	X	X	X	
SB206-40'	SB-206	Soil	40	06/19/2019	11:15	X	X	X	
SB206-45'	SB-206	Soil	45	06/19/2019	11:25	X	X	X	
SB206-50'	SB-206	Soil	50	06/19/2019	11:45	X	X	X	
SB206-55'	SB-206	Soil	55	06/19/2019	12:10	X	X	X	
SB206-60'	SB-206	Soil	60	06/19/2019	12:40	X	X	X	
SB206-65'	SB-206	Soil	65	06/19/2019	12:45	X	X	X	
SB206-70'	SB-206	Soil	70	06/19/2019	14:00	X	X	X	
FD1	SB-206	Soil	70	06/19/2019	--	X	X	X	MS/MSD - FD (SB206-70')
SB206-77'	SB-206	Soil	77	06/19/2019	14:05	X	X	X	
FD2	SB-206	Soil	77	06/19/2019	--	X	X	X	FD (SB206-77')
SB206-GW	SB-206	Water	--	06/19/2019	14:10		X		

Table 1

Sample Collection and Analysis Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>			Comments
						Moisture	VOCs	TOC	
SB207-5'	SB-207	Soil	5	06/21/2019	09:10	X	X	X	
SB207-10'	SB-207	Soil	10	06/21/2019	09:20	X	X	X	
SB207-15'	SB-207	Soil	15	06/21/2019	09:25	X	X	X	
SB207-20'	SB-207	Soil	20	06/21/2019	09:30	X	X	X	
SB207-25'	SB-207	Soil	25	06/21/2019	09:35	X	X	X	
SB207-30'	SB-207	Soil	30	06/21/2019	09:55	X	X	X	
SB207-35'	SB-207	Soil	35	06/21/2019	10:00	X	X	X	
SB207-40'	SB-207	Soil	40	06/21/2019	10:20	X	X	X	
SB207-45'	SB-207	Soil	45	06/21/2019	10:30	X	X	X	
SB207-50'	SB-207	Soil	50	06/21/2019	10:45	X	X	X	DUP - MS/MSD
SB207-55'	SB-207	Soil	55	06/21/2019	10:55	X	X	X	
SB207-60'	SB-207	Soil	60	06/21/2019	11:35	X	X	X	
SB207-65'	SB-207	Soil	65	06/21/2019	11:45	X	X	X	
FD4	SB-207	Soil	65	06/21/2019	--	X	X	X	FD (SB207-65')
SB207-70'	SB-207	Soil	70	06/21/2019	12:00	X	X	X	
SB207-75'	SB-207	Soil	75	06/21/2019	12:10	X	X	X	
SB208-5'	SB-208	Soil	5	06/20/2019	09:10	X	X	X	
SB208-10'	SB-208	Soil	10	06/20/2019	09:35	X	X	X	

Table 1

Sample Collection and Analysis Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>			Comments
						Moisture	VOCs	TOC	
SB208-15'	SB-208	Soil	15	06/20/2019	09:45	X	X	X	
SB208-20'	SB-208	Soil	20	06/20/2019	10:00	X	X	X	
SB208-25'	SB-208	Soil	25	06/20/2019	10:05	X	X	X	
SB208-30'	SB-208	Soil	30	06/20/2019	10:30	X	X	X	DUP
SB208-35'	SB-208	Soil	35	06/20/2019	10:55	X	X	X	
SB208-40'	SB-208	Soil	40	06/20/2019	11:05	X	X	X	DUP
SB208-45'	SB-208	Soil	45	06/20/2019	11:10	X	X	X	
SB208-50'	SB-208	Soil	50	06/20/2019	11:35	X	X	X	DUP - MS/MSD
FD3	SB-208	Soil	50	06/20/2019	--	X	X	X	FD (SB208-50')
SB208-55'	SB-208	Soil	55	06/20/2019	11:45	X	X	X	
SB208-60'	SB-208	Soil	60	06/20/2019	12:00	X	X	X	
SB208-65'	SB-208	Soil	65	06/20/2019	12:10	X	X	X	
SB208-70'	SB-208	Soil	70	06/20/2019	12:50	X	X	X	
SB208-75'	SB-208	Soil	75	06/20/2019	13:00	X	X	X	
SB208-80'	SB-208	Soil	80	06/20/2019	13:55	X	X	X	DUP
SB208-85'	SB-208	Soil	85	06/20/2019	14:05	X	X	X	DUP
SB208-90'	SB-208	Soil	90	06/20/2019	14:45	X	X	X	
SB208-GW	SB-208	Water	--	06/20/2019	14:00		X		

Table 1

Sample Collection and Analysis Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>			Comments
						Moisture	VOCs	TOC	
TB1	--	Soil	--	06/19/2019			X		Trip Blank
TB2	--	Soil	--	06/19/2019			X		Trip Blank
TB3	--	Soil	--	06/19/2019			X		Trip Blank
TB4	--	Soil	--	06/20/2019			X		Trip Blank
TB1	--	Soil	--	06/21/2019			X		Trip Blank
TB2	--	Soil	--	06/21/2019			X		Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- FD - Field Duplicate sample of sample in parenthesis
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

**Analytical Methods
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water Soil
Total Organic Carbon (TOC)	SW-846 9060A ⁽¹⁾	Water Soil
Moisture	ASTM D2974 ⁽²⁾	Soil
	SM 2540G ⁽³⁾	Soil

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - ASTM - Annual Book of ASTM Standards, American Society for Testing Materials, Section 5 and Section 11
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206
Sample Name:	SB206-5'	SB206-10'	SB206-15'	SB206-20'	SB206-25'	SB206-30'	SB206-35'	SB206-40'	SB206-45'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019
Depth:	5 ft bgs	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs

Parameters	Unit	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/kg	<0.027	<0.027	<0.036	<0.037	<0.033	<0.034	<0.033	<0.033	<0.035
1,1,2,2-Tetrachloroethane	mg/kg	<0.010	<0.010	<0.014	<0.014	<0.012	<0.013	<0.013	<0.012	<0.013
1,1,2-Trichloroethane	mg/kg	<0.0070	<0.0069	<0.0093	<0.0094	<0.0084	<0.0086	<0.0085	<0.0084	<0.0090
1,1-Dichloroethane	mg/kg	<0.0065	<0.0065	<0.0087	<0.0088	<0.0079	<0.0081	<0.0080	<0.0079	<0.0085
1,1-Dichloroethene	mg/kg	<0.017	<0.017	<0.023	<0.024	<0.021	<0.022	<0.021	<0.021	<0.023
1,2,4-Trichlorobenzene	mg/kg	<0.013	<0.013	<0.017	<0.017	<0.016	<0.016	<0.016	<0.016	<0.017
1,2,4-Trimethylbenzene	mg/kg	<0.012	<0.012	<0.016	<0.016	<0.014	<0.014	<0.014	<0.014	<0.015
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0061	<0.0061	<0.0082	<0.0083	<0.0074	<0.0076	<0.0075	<0.0074	<0.0080
1,2-Dichlorobenzene	mg/kg	<0.0024	<0.0023	<0.0031	<0.0032	<0.0028	<0.0029	<0.0029	<0.0028	<0.0031
1,2-Dichloroethane	mg/kg	<0.0064	<0.0063	<0.0086	<0.0087	<0.0078	<0.0079	<0.0078	<0.0077	<0.0083
1,3,5-Trimethylbenzene	mg/kg	<0.0093	<0.0092	<0.012	<0.013	<0.011	<0.011	<0.011	<0.011	<0.012
1,3-Dichlorobenzene	mg/kg	<0.0021	<0.0021	<0.0028	<0.0029	<0.0026	<0.0026	<0.0026	<0.0025	<0.0028
1,4-Dichlorobenzene	mg/kg	<0.0036	<0.0036	<0.0048	<0.0049	<0.0044	<0.0045	<0.0044	<0.0043	<0.0047
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.031	<0.031	<0.041	<0.042	<0.037	<0.038	<0.038	<0.037	<0.040
2-Hexanone	mg/kg	<0.013	<0.013	<0.018	<0.018	<0.016	<0.017	<0.016	<0.016	<0.017
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.012	<0.012	<0.016	<0.016	<0.015	<0.015	<0.015	<0.015	<0.016
Acetone	mg/kg	<0.36	<0.36	<0.48	<0.49	<0.44	<0.45	<0.44	<0.44	<0.47
Benzene	mg/kg	<0.0033	<0.0033	<0.0044	<0.0044	0.0070 J	<0.0041	<0.0040	<0.0039	<0.0043
Bromodichloromethane	mg/kg	<0.020	<0.020	<0.027	<0.027	<0.024	<0.025	<0.024	<0.024	<0.026
Bromoform	mg/kg	<0.088	<0.087	<0.12	<0.12	<0.11	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	mg/kg	<0.068	<0.067	<0.091	<0.092	<0.082	<0.084	<0.083	<0.082	<0.089
Carbon tetrachloride	mg/kg	<0.028	<0.028	<0.037	<0.038	<0.034	<0.034	<0.034	<0.033	<0.036
Chlorobenzene	mg/kg	<0.0033	<0.0033	<0.0044	<0.0044	<0.0040	<0.0041	<0.0040	<0.0039	<0.0043

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206
Sample Name:	SB206-5'	SB206-10'	SB206-15'	SB206-20'	SB206-25'	SB206-30'	SB206-35'	SB206-40'	SB206-45'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019
Depth:	5 ft bgs	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Parameter	SB-206 (5 ft)	SB-206 (10 ft)	SB-206 (15 ft)	SB-206 (20 ft)	SB-206 (25 ft)	SB-206 (30 ft)	SB-206 (35 ft)	SB-206 (40 ft)	SB-206 (45 ft)	
Chloroethane	mg/kg	<0.030	<0.030	<0.040	<0.041	<0.037	<0.037	<0.037	<0.036	<0.039
Chloroform (Trichloromethane)	mg/kg	<0.029	<0.029	<0.039	<0.039	<0.035	<0.036	<0.036	<0.035	<0.038
Chloromethane (Methyl chloride)	mg/kg	<0.014	<0.014	<0.019	<0.019	<0.017	<0.017	<0.017	<0.017	<0.018
cis-1,2-Dichloroethene	mg/kg	<0.0097	<0.0096	<0.013	<0.013	<0.012	<0.012	<0.012	<0.012	<0.013
cis-1,3-Dichloropropene	mg/kg	<0.0084	<0.0083	<0.011	<0.011	<0.010	<0.010	<0.010	<0.010	<0.011
Dibromochloromethane	mg/kg	<0.0068	<0.0067	<0.0090	<0.0091	<0.0082	<0.0084	<0.0083	<0.0081	<0.0088
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.019	<0.019	<0.025	<0.026	<0.023	<0.023	<0.023	<0.023	<0.025
Ethylbenzene	mg/kg	<0.0032	<0.0031	<0.0042	<0.0043	<0.0038	<0.0039	<0.0039	<0.0038	<0.0041
Hexachlorobutadiene	mg/kg	<0.014	<0.014	<0.019	<0.019	<0.017	<0.018	<0.017	<0.017	<0.018
m&p-Xylenes	mg/kg	<0.0072	<0.0071	<0.0096	<0.0097	<0.0087	<0.0089	<0.0088	<0.0087	<0.0094
Methyl tert butyl ether (MTBE)	mg/kg	<0.0069	<0.0069	<0.0093	<0.0094	<0.0084	<0.0086	<0.0085	<0.0083	<0.0090
Methylene chloride	mg/kg	<0.11	<0.11	<0.15	<0.15	<0.13	<0.14	<0.13	0.14 J+	<0.14
Naphthalene	mg/kg	<0.055	<0.054	<0.073	<0.074	<0.066	<0.067	<0.067	<0.066	<0.071
o-Xylene	mg/kg	<0.014	<0.013	<0.018	<0.018	<0.016	<0.017	<0.017	<0.016	<0.018
Styrene	mg/kg	<0.0027	<0.0026	<0.0036	<0.0036	<0.0032	<0.0033	<0.0032	<0.0032	<0.0035
Tetrachloroethene	mg/kg	<0.021	<0.020	<0.027	<0.028	<0.025	<0.025	<0.025	<0.025	<0.027
Tetrahydrofuran	mg/kg	<0.085	<0.084	<0.11	<0.11	<0.10	<0.10	<0.10	<0.10	<0.11
Toluene	mg/kg	<0.014	<0.014	<0.019	<0.019	<0.017	<0.018	<0.017	<0.017	<0.018
trans-1,2-Dichloroethene	mg/kg	<0.027	<0.027	<0.036	<0.037	<0.033	<0.034	<0.033	<0.033	<0.035
trans-1,3-Dichloropropene	mg/kg	<0.0081	<0.0080	<0.011	<0.011	<0.0098	<0.010	<0.0099	<0.0097	<0.011
Trichloroethene	mg/kg	<0.0090	<0.0089	<0.012	<0.012	<0.011	<0.011	<0.011	<0.011	<0.012
Trichlorofluoromethane (CFC-11)	mg/kg	<0.10	<0.10	<0.14	<0.14	<0.12	<0.13	<0.12	<0.12	<0.13
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.068	<0.067	<0.090	<0.091	<0.082	<0.084	<0.083	<0.081	<0.088

Table 3A
Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206
Sample Name:	SB206-5'	SB206-10'	SB206-15'	SB206-20'	SB206-25'	SB206-30'	SB206-35'	SB206-40'	SB206-45'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019
Depth:	5 ft bgs	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Vinyl acetate	mg/kg	<0.0068	<0.0067	<0.0090	<0.0091	<0.0082	<0.0083	<0.0082	<0.0081	<0.0088
Vinyl chloride	mg/kg	<0.011	<0.011	<0.015	<0.015	<0.014	<0.014	<0.014	<0.014	<0.015

General Chemistry

Percent moisture	%	15.4	15.9	34.7	36.6	29.6	27.9	28.0	24.9	32.7
TOC average duplicates	mg/kg	<1400 J	2100	<360 J	<44	<44	<44	<44	<44	<44

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-207
Sample Name:	SB206-50'	SB206-55'	SB206-60'	SB206-65'	SB206-70'	FD1	SB206-77'	FD2	SB207-5'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/21/2019
Depth:	50 ft bgs	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	70 ft bgs Duplicate	77 ft bgs	77 ft bgs Duplicate	5 ft bgs

Parameters

Unit

Volatile Organic Compounds

Parameter	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-207
1,1,1-Trichloroethane	mg/kg	<0.036	<0.032	<0.033	<0.032	<0.032	<0.034	<0.032	<0.028
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.012	<0.013	<0.012	<0.012	<0.013	<0.012	<0.011
1,1,2-Trichloroethane	mg/kg	<0.0093	<0.0083	<0.0085	<0.0081	<0.0082	<0.0088	<0.0082	<0.0072
1,1-Dichloroethane	mg/kg	<0.0087	<0.0078	<0.0080	<0.0076	<0.0077	<0.0083	<0.0077	<0.0067
1,1-Dichloroethene	mg/kg	<0.023	<0.021	<0.021	<0.020	<0.021	<0.022	<0.020	<0.018
1,2,4-Trichlorobenzene	mg/kg	<0.017	<0.015	<0.016	<0.015	<0.015	<0.016	<0.015	<0.013
1,2,4-Trimethylbenzene	mg/kg	<0.015	<0.014	<0.014	<0.014	<0.014	<0.015	<0.014	<0.012
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0081	<0.0073	<0.0075	<0.0071	<0.0072	<0.0078	<0.0072	<0.0063
1,2-Dichlorobenzene	mg/kg	<0.0031	<0.0028	<0.0029	<0.0027	<0.0028	<0.0030	<0.0028	<0.0024
1,2-Dichloroethane	mg/kg	<0.0085	<0.0076	<0.0078	<0.0075	<0.0076	<0.0081	<0.0075	<0.0066
1,3,5-Trimethylbenzene	mg/kg	<0.012	<0.011	<0.011	<0.011	<0.011	<0.012	<0.011	<0.0095
1,3-Dichlorobenzene	mg/kg	<0.0028	<0.0025	<0.0026	<0.0025	<0.0025	<0.0027	<0.0025	<0.0022
1,4-Dichlorobenzene	mg/kg	<0.0048	<0.0043	<0.0044	<0.0042	<0.0043	<0.0046	<0.0042	<0.0037
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.041	<0.037	<0.038	<0.036	<0.037	<0.039	<0.036	<0.032
2-Hexanone	mg/kg	<0.018	<0.016	<0.016	<0.016	<0.016	<0.017	<0.016	<0.014
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.016	<0.014	<0.015	<0.014	<0.014	<0.015	<0.014	<0.012
Acetone	mg/kg	<0.48	<0.43	<0.44	<0.42	<0.43	<0.46	<0.42	<0.37
Benzene	mg/kg	<0.0044	<0.0039	<0.0040	<0.0038	<0.0039	<0.0042	<0.0038	<0.0034
Bromodichloromethane	mg/kg	<0.026	<0.024	<0.024	<0.023	<0.024	<0.025	<0.023	<0.020
Bromoform	mg/kg	<0.12	<0.10	<0.11	<0.10	<0.10	<0.11	<0.10	<0.091
Bromomethane (Methyl bromide)	mg/kg	<0.091	<0.081	<0.083	<0.079	<0.080	<0.086	<0.080	<0.070
Carbon tetrachloride	mg/kg	<0.037	<0.033	<0.034	<0.032	<0.033	<0.035	<0.033	<0.029
Chlorobenzene	mg/kg	<0.0044	<0.0039	<0.0040	<0.0038	<0.0039	<0.0042	<0.0038	<0.0034

Table 3A

Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-207
Sample Name:	SB206-50'	SB206-55'	SB206-60'	SB206-65'	SB206-70'	FD1	SB206-77'	FD2	SB207-5'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/21/2019
Depth:	50 ft bgs	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	70 ft bgs	77 ft bgs	77 ft bgs	5 ft bgs
						Duplicate		Duplicate	

Parameters	Unit									
Volatile Organic Compounds (Continued)										
Chloroethane	mg/kg	<0.040	<0.036	<0.037	<0.035	<0.036	<0.038	<0.035	<0.031	<0.032
Chloroform (Trichloromethane)	mg/kg	<0.039	<0.035	<0.035	<0.034	<0.034	<0.037	<0.034	<0.030	<0.031
Chloromethane (Methyl chloride)	mg/kg	<0.019	<0.017	<0.017	<0.016	<0.017	<0.018	<0.016	<0.014	<0.015
cis-1,2-Dichloroethene	mg/kg	<0.013	<0.011	<0.012	<0.011	<0.011	<0.012	<0.011	<0.0099	<0.010
cis-1,3-Dichloropropene	mg/kg	<0.011	<0.0099	<0.010	<0.0097	<0.0098	<0.011	<0.0098	<0.0086	<0.0089
Dibromochloromethane	mg/kg	<0.0090	<0.0080	<0.0082	<0.0079	<0.0080	<0.0086	<0.0079	<0.0069	<0.0072
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.025	<0.022	<0.023	<0.022	<0.022	<0.024	<0.022	<0.019	<0.020
Ethylbenzene	mg/kg	<0.0042	<0.0038	<0.0039	<0.0037	<0.0037	<0.0040	<0.0037	<0.0033	<0.0034
Hexachlorobutadiene	mg/kg	<0.019	<0.017	<0.017	<0.017	<0.017	<0.018	<0.017	<0.015	<0.015
m&p-Xylenes	mg/kg	<0.0096	<0.0086	<0.0088	<0.0084	<0.0085	<0.0091	<0.0084	<0.0074	<0.0077
Methyl tert butyl ether (MTBE)	mg/kg	<0.0092	<0.0082	<0.0084	<0.0081	<0.0082	<0.0088	<0.0081	<0.0071	<0.0074
Methylene chloride	mg/kg	<0.15	<0.13	<0.13	<0.13	<0.13	<0.14	<0.13	<0.11	<0.12
Naphthalene	mg/kg	<0.073	<0.065	<0.066	<0.063	<0.064	<0.069	<0.064	<0.056	<0.058
o-Xylene	mg/kg	<0.018	<0.016	<0.016	<0.016	<0.016	<0.017	<0.016	<0.014	<0.014
Styrene	mg/kg	<0.0035	<0.0032	<0.0032	<0.0031	<0.0031	<0.0034	<0.0031	<0.0027	<0.0028
Tetrachloroethene	mg/kg	<0.027	<0.024	<0.025	<0.024	<0.024	<0.026	<0.024	<0.021	<0.022
Tetrahydrofuran	mg/kg	<0.11	<0.10	<0.10	<0.099	<0.10	<0.11	<0.099	<0.087	<0.091
Toluene	mg/kg	<0.019	<0.017	<0.017	<0.017	<0.017	<0.018	<0.017	<0.015	<0.015
trans-1,2-Dichloroethene	mg/kg	<0.036	<0.032	<0.033	<0.032	<0.032	<0.035	<0.032	<0.028	<0.029
trans-1,3-Dichloropropene	mg/kg	<0.011	<0.0096	<0.0099	<0.0094	<0.0096	<0.010	<0.0095	<0.0083	<0.0087
Trichloroethene	mg/kg	<0.012	<0.011	<0.011	<0.010	<0.011	<0.011	<0.011	<0.0092	<0.0096
Trichlorofluoromethane (CFC-11)	mg/kg	<0.14	<0.12	<0.12	<0.12	<0.12	<0.13	<0.12	<0.10	<0.11
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.090	<0.080	<0.082	<0.079	<0.080	<0.086	<0.079	<0.069	<0.072

Table 3A
Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-206	SB-207
Sample Name:	SB206-50'	SB206-55'	SB206-60'	SB206-65'	SB206-70'	FD1	SB206-77'	FD2	SB207-5'
Sample Date:	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/21/2019
Depth:	50 ft bgs	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	70 ft bgs	77 ft bgs	77 ft bgs	5 ft bgs
						Duplicate		Duplicate	

Parameters

Unit

Volatile Organic Compounds (Continued)

Vinyl acetate	mg/kg	<0.0090	<0.0080	<0.0082	<0.0079	<0.0080	<0.0085	<0.0079	<0.0069	<0.0072
Vinyl chloride	mg/kg	<0.015	<0.014	<0.014	<0.013	<0.014	<0.015	<0.013	<0.012	<0.012

General Chemistry

Percent moisture	%	35.4	27.2	32.2	29.1	30.2	28.0	26.5	16.1	16.5
TOC average duplicates	mg/kg	<44	<44	<44	<44	<360 J	<770 J	<44	<360 J	2100

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207
Sample Name:	SB207-10'	SB207-15'	SB207-20'	SB207-25'	SB207-30'	SB207-35'	SB207-40'	SB207-45'	SB207-50'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019
Depth:	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs

Parameters

Unit

Volatile Organic Compounds

1,1,1-Trichloroethane	mg/kg	<0.028	<0.029	<0.028	<0.028	<0.028	<0.029	<0.030	<0.035	<0.033
1,1,2,2-Tetrachloroethane	mg/kg	<0.010	<0.011	<0.010	<0.011	<0.011	<0.011	<0.011	<0.013	<0.012
1,1,2-Trichloroethane	mg/kg	<0.0071	<0.0074	<0.0071	<0.0073	<0.0072	<0.0074	<0.0076	<0.0091	<0.0085
1,1-Dichloroethane	mg/kg	<0.0067	<0.0070	<0.0067	<0.0068	<0.0068	<0.0069	<0.0071	<0.0085	<0.0080
1,1-Dichloroethene	mg/kg	<0.018	<0.019	<0.018	<0.018	<0.018	<0.018	<0.019	<0.023	<0.021
1,2,4-Trichlorobenzene	mg/kg	<0.013	<0.014	<0.013	<0.014	<0.013	<0.014	<0.014	<0.017	<0.016
1,2,4-Trimethylbenzene	mg/kg	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.013	<0.015	<0.014
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0062	<0.0065	<0.0062	<0.0064	<0.0064	<0.0065	<0.0067	<0.0080	<0.0075
1,2-Dichlorobenzene	mg/kg	<0.0024	<0.0025	<0.0024	<0.0025	<0.0024	<0.0025	<0.0026	<0.0031	<0.0029
1,2-Dichloroethane	mg/kg	<0.0065	<0.0068	<0.0065	<0.0067	<0.0067	<0.0068	<0.0070	<0.0084	<0.0078
1,3,5-Trimethylbenzene	mg/kg	<0.0095	<0.0099	<0.0094	<0.0097	<0.0097	<0.0098	<0.010	<0.012	<0.011
1,3-Dichlorobenzene	mg/kg	<0.0022	<0.0023	<0.0022	<0.0022	<0.0022	<0.0022	<0.0023	<0.0028	<0.0026
1,4-Dichlorobenzene	mg/kg	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0038	<0.0039	<0.0047	<0.0044
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.032	<0.033	<0.032	<0.032	<0.032	<0.033	<0.034	<0.040	<0.038
2-Hexanone	mg/kg	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.015	<0.017	<0.016
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.012	<0.013	<0.012	<0.013	<0.013	<0.013	<0.013	<0.016	<0.015
Acetone	mg/kg	<0.37	<0.39	<0.37	<0.38	<0.38	<0.38	<0.40	<0.47	<0.44
Benzene	mg/kg	<0.0033	<0.0035	<0.0033	<0.0034	<0.0034	<0.0035	<0.0036	<0.0043	<0.0082 J
Bromodichloromethane	mg/kg	<0.020	<0.021	<0.020	<0.021	<0.021	<0.021	<0.022	<0.026	<0.024
Bromoform	mg/kg	<0.090	<0.094	<0.090	<0.092	<0.092	<0.093	<0.096	<0.12	<0.11
Bromomethane (Methyl bromide)	mg/kg	<0.069	<0.073	<0.069	<0.071	<0.071	<0.072	<0.074	<0.089	<0.083
Carbon tetrachloride	mg/kg	<0.028	<0.030	<0.028	<0.029	<0.029	<0.029	<0.030	<0.036	<0.034
Chlorobenzene	mg/kg	<0.0033	<0.0035	<0.0033	<0.0034	<0.0034	<0.0035	<0.0036	<0.0043	<0.0040

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207
Sample Name:	SB207-10'	SB207-15'	SB207-20'	SB207-25'	SB207-30'	SB207-35'	SB207-40'	SB207-45'	SB207-50'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019
Depth:	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Parameters	Unit	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207
Chloroethane	mg/kg	<0.031	<0.032	<0.031	<0.032	<0.032	<0.032	<0.033	<0.040	<0.037
Chloroform (Trichloromethane)	mg/kg	<0.030	<0.031	<0.030	<0.030	<0.030	<0.031	<0.032	<0.038	<0.035
Chloromethane (Methyl chloride)	mg/kg	<0.014	<0.015	<0.014	<0.015	<0.015	<0.015	<0.015	<0.018	<0.017
cis-1,2-Dichloroethene	mg/kg	<0.0098	<0.010	<0.0098	<0.010	<0.010	<0.010	<0.011	<0.013	<0.012
cis-1,3-Dichloropropene	mg/kg	<0.0085	<0.0089	<0.0085	<0.0087	<0.0087	<0.0088	<0.0091	<0.011	<0.010
Dibromochloromethane	mg/kg	<0.0069	<0.0072	<0.0069	<0.0071	<0.0070	<0.0071	<0.0074	<0.0088	<0.0082
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.019	<0.020	<0.019	<0.020	<0.020	<0.020	<0.021	<0.025	<0.023
Ethylbenzene	mg/kg	<0.0032	<0.0034	<0.0032	<0.0033	<0.0033	<0.0033	<0.0035	<0.0041	<0.0039
Hexachlorobutadiene	mg/kg	<0.014	<0.015	<0.014	<0.015	<0.015	<0.015	<0.016	<0.019	<0.017
m&p-Xylenes	mg/kg	<0.0073	<0.0077	<0.0073	<0.0075	<0.0075	<0.0076	<0.0079	<0.0094	<0.0088
Methyl tert butyl ether (MTBE)	mg/kg	<0.0071	<0.0074	<0.0071	<0.0073	<0.0072	<0.0073	<0.0076	<0.0090	<0.0084
Methylene chloride	mg/kg	<0.11	<0.12	<0.11	<0.11	<0.11	<0.12	<0.12	<0.14	<0.13
Naphthalene	mg/kg	<0.056	<0.058	<0.055	<0.057	<0.057	<0.058	<0.060	<0.071	<0.066
o-Xylene	mg/kg	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.015	<0.018	<0.016
Styrene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0028	<0.0028	<0.0028	<0.0029	<0.0035	<0.0032
Tetrachloroethene	mg/kg	<0.021	<0.022	<0.021	<0.021	<0.021	<0.022	<0.022	<0.027	<0.025
Tetrahydrofuran	mg/kg	<0.086	<0.090	<0.086	<0.089	<0.088	<0.090	<0.092	<0.11	<0.10
Toluene	mg/kg	<0.014	<0.015	<0.014	<0.015	<0.015	<0.015	<0.016	<0.019	<0.017
trans-1,2-Dichloroethene	mg/kg	<0.028	<0.029	<0.028	<0.029	<0.028	<0.029	<0.030	<0.036	<0.033
trans-1,3-Dichloropropene	mg/kg	<0.0082	<0.0086	<0.0082	<0.0085	<0.0084	<0.0086	<0.0088	<0.011	<0.0099
Trichloroethene	mg/kg	<0.0091	<0.0096	<0.0091	<0.0094	<0.0093	<0.0095	<0.0098	<0.012	<0.011
Trichlorofluoromethane (CFC-11)	mg/kg	<0.10	<0.11	<0.10	<0.11	<0.11	<0.11	<0.11	<0.13	<0.12
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.069	<0.072	<0.069	<0.071	<0.070	<0.071	<0.074	<0.088	<0.082

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207
Sample Name:	SB207-10'	SB207-15'	SB207-20'	SB207-25'	SB207-30'	SB207-35'	SB207-40'	SB207-45'	SB207-50'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019
Depth:	10 ft bgs	15 ft bgs	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs

Parameters

Unit

Volatile Organic Compounds (Continued)

Vinyl acetate	mg/kg	<0.0069	<0.0072	<0.0069	<0.0071	<0.0070	<0.0071	<0.0074	<0.0088	<0.0082
Vinyl chloride	mg/kg	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.013	<0.015	<0.014

General Chemistry

Percent moisture	%	15.4	16.9	16.6	19.0	19.2	20.9	22.8	30.7	31.2
TOC average duplicates	mg/kg	1500 J	710 J	430 J	750 J	2200	240 J	840 J	210 J	<44

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-208	SB-208	SB-208
Sample Name:	SB207-55'	SB207-60'	SB207-65'	FD4	SB207-70'	SB207-75'	SB208-5'	SB208-10'	SB208-15'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	65 ft bgs Duplicate	70 ft bgs	75 ft bgs	5 ft bgs	10 ft bgs	15 ft bgs

Parameters

Unit

Volatile Organic Compounds

Parameter	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-208	SB-208	SB-208
1,1,1-Trichloroethane	mg/kg	<0.037	<0.045	<0.035	<0.035	<0.037	<0.034	<0.029	<0.032
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.017	<0.013	<0.013	<0.014	<0.013	<0.011	<0.012
1,1,2-Trichloroethane	mg/kg	<0.0095	<0.011	<0.0090	<0.0090	<0.0094	<0.0087	<0.0075	<0.0081
1,1-Dichloroethane	mg/kg	<0.0089	<0.011	<0.0085	<0.0085	<0.0088	<0.0082	<0.0070	<0.0076
1,1-Dichloroethene	mg/kg	<0.024	<0.029	<0.023	<0.023	<0.024	<0.022	<0.019	<0.020
1,2,4-Trichlorobenzene	mg/kg	<0.018	<0.021	<0.017	<0.017	<0.017	<0.016	<0.014	<0.015
1,2,4-Trimethylbenzene	mg/kg	<0.016	<0.019	<0.015	<0.015	<0.016	<0.015	<0.013	<0.014
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0083	<0.010	<0.0080	<0.0079	<0.0082	<0.0076	<0.0066	<0.0072
1,2-Dichlorobenzene	mg/kg	<0.0032	<0.0039	<0.0031	<0.0030	<0.0032	<0.0029	<0.0025	<0.0027
1,2-Dichloroethane	mg/kg	<0.0087	<0.011	<0.0083	<0.0083	<0.0086	<0.0080	<0.0069	<0.0075
1,3,5-Trimethylbenzene	mg/kg	<0.013	<0.015	<0.012	<0.012	<0.012	<0.012	<0.010	<0.011
1,3-Dichlorobenzene	mg/kg	<0.0029	<0.0035	<0.0028	<0.0027	<0.0029	<0.0026	<0.0023	<0.0025
1,4-Dichlorobenzene	mg/kg	<0.0049	<0.0059	<0.0047	<0.0047	<0.0049	<0.0045	<0.0039	<0.0042
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.042	<0.051	<0.040	<0.040	<0.042	<0.039	<0.033	<0.036
2-Hexanone	mg/kg	<0.018	<0.022	<0.017	<0.017	<0.018	<0.017	<0.014	<0.016
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.016	<0.020	<0.016	<0.016	<0.016	<0.015	<0.013	<0.014
Acetone	mg/kg	<0.49	<0.60	<0.47	<0.47	<0.49	<0.45	<0.39	<0.42
Benzene	mg/kg	<0.0045	<0.0054	<0.0043	<0.0043	<0.0044	<0.0041	0.0036 J	<0.0038
Bromodichloromethane	mg/kg	<0.027	<0.033	<0.026	<0.026	<0.027	<0.025	<0.021	<0.023
Bromoform	mg/kg	<0.12	<0.14	<0.11	<0.11	<0.12	<0.11	<0.095	<0.10
Bromomethane (Methyl bromide)	mg/kg	<0.093	<0.11	<0.088	<0.088	<0.092	<0.085	<0.073	<0.080
Carbon tetrachloride	mg/kg	<0.038	<0.046	<0.036	<0.036	<0.037	<0.035	<0.030	<0.033
Chlorobenzene	mg/kg	<0.0045	<0.0054	<0.0043	<0.0043	<0.0044	<0.0041	<0.0035	<0.0038

Table 3A

Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-208	SB-208	SB-208
Sample Name:	SB207-55'	SB207-60'	SB207-65'	FD4	SB207-70'	SB207-75'	SB208-5'	SB208-10'	SB208-15'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	65 ft bgs Duplicate	70 ft bgs	75 ft bgs	5 ft bgs	10 ft bgs	15 ft bgs

Parameters**Unit****Volatile Organic Compounds (Continued)**

Parameters	Unit	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-208	SB-208	SB-208
Chloroethane	mg/kg	<0.041	<0.050	<0.039	<0.039	<0.041	<0.038	<0.033	<0.035	<0.035
Chloroform (Trichloromethane)	mg/kg	<0.040	<0.048	<0.038	<0.038	<0.039	<0.036	<0.031	<0.034	0.039 J
Chloromethane (Methyl chloride)	mg/kg	<0.019	<0.023	<0.018	<0.018	<0.019	<0.017	<0.015	<0.016	<0.016
cis-1,2-Dichloroethene	mg/kg	<0.013	<0.016	<0.013	<0.012	<0.013	<0.012	<0.010	<0.011	<0.011
cis-1,3-Dichloropropene	mg/kg	<0.011	<0.014	<0.011	<0.011	<0.011	<0.010	<0.0090	<0.0097	<0.0097
Dibromochloromethane	mg/kg	<0.0092	<0.011	<0.0088	<0.0087	<0.0091	<0.0084	<0.0073	<0.0079	<0.0079
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.026	<0.031	<0.024	<0.024	<0.025	<0.024	<0.020	<0.022	<0.022
Ethylbenzene	mg/kg	<0.0043	<0.0052	<0.0041	<0.0041	<0.0043	<0.0040	<0.0034	<0.0037	<0.0037
Hexachlorobutadiene	mg/kg	<0.019	<0.023	<0.018	<0.018	<0.019	<0.018	<0.015	<0.017	<0.017
m&p-Xylenes	mg/kg	<0.0098	<0.012	<0.0094	<0.0093	<0.0097	<0.0090	<0.0077	<0.0084	<0.0084
Methyl tert butyl ether (MTBE)	mg/kg	<0.0094	<0.011	<0.0090	<0.0090	<0.0093	<0.0087	<0.0074	<0.0081	<0.0081
Methylene chloride	mg/kg	<0.15	<0.18	<0.14	<0.14	<0.15	<0.14	<0.12	<0.13	<0.13
Naphthalene	mg/kg	<0.074	<0.090	<0.071	<0.071	<0.073	<0.068	<0.059	<0.064	<0.064
o-Xylene	mg/kg	<0.018	<0.022	<0.018	<0.017	<0.018	<0.017	<0.015	<0.016	<0.016
Styrene	mg/kg	<0.0036	<0.0044	<0.0034	<0.0034	<0.0036	<0.0033	<0.0029	<0.0031	<0.0031
Tetrachloroethene	mg/kg	<0.028	<0.034	<0.027	<0.027	<0.028	<0.026	<0.022	<0.024	<0.024
Tetrahydrofuran	mg/kg	<0.12	<0.14	<0.11	<0.11	<0.11	<0.11	<0.091	<0.099	<0.099
Toluene	mg/kg	<0.019	<0.023	<0.018	<0.018	<0.019	<0.018	<0.015	<0.017	<0.017
trans-1,2-Dichloroethene	mg/kg	<0.037	<0.045	<0.035	<0.035	<0.037	<0.034	<0.029	<0.032	<0.032
trans-1,3-Dichloropropene	mg/kg	<0.011	<0.013	<0.011	<0.010	<0.011	<0.010	<0.0087	<0.0095	<0.0094
Trichloroethene	mg/kg	<0.012	<0.015	<0.012	<0.012	<0.012	<0.011	<0.0096	<0.010	<0.010
Trichlorofluoromethane (CFC-11)	mg/kg	<0.14	<0.17	<0.13	<0.13	<0.14	<0.13	<0.11	<0.12	<0.12
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.092	<0.11	<0.088	<0.087	<0.091	<0.084	<0.073	<0.079	<0.079

Table 3A

Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-207	SB-207	SB-207	SB-207	SB-207	SB-207	SB-208	SB-208	SB-208
Sample Name:	SB207-55'	SB207-60'	SB207-65'	FD4	SB207-70'	SB207-75'	SB208-5'	SB208-10'	SB208-15'
Sample Date:	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	65 ft bgs Duplicate	70 ft bgs	75 ft bgs	5 ft bgs	10 ft bgs	15 ft bgs

Parameters**Unit****Volatile Organic Compounds (Continued)**

Vinyl acetate	mg/kg	<0.0092	<0.011	<0.0088	<0.0087	<0.0091	<0.0084	<0.0072	<0.0079	<0.0079
Vinyl chloride	mg/kg	<0.016	<0.019	<0.015	<0.015	<0.015	<0.014	<0.012	<0.013	<0.013

General Chemistry

Percent moisture	%	35.9	35.9	33.1	34.7	34.8	30.4	16.0	22.5	17.0
TOC average duplicates	mg/kg	100 J	130 J	75 J	<44	<44	<44	<610 J	<430 J	<360 J

Table 3A

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-20'	SB208-25'	SB208-30'	SB208-35'	SB208-40'	SB208-45'	SB208-50'	SB208-50'	FD3
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs	50 ft bgs	50 ft bgs Duplicate

Parameters	Unit								
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg	<0.029	<0.028	<0.031	<0.036	<0.037	<0.035	<0.031	<0.041
1,1,2,2-Tetrachloroethane	mg/kg	<0.011	<0.011	<0.012	<0.014	<0.014	<0.013	<0.012	<0.016
1,1,2-Trichloroethane	mg/kg	<0.0075	<0.0072	<0.0081	<0.0093	<0.0094	<0.0091	<0.0080	<0.011
1,1-Dichloroethane	mg/kg	<0.0071	<0.0067	<0.0076	<0.0088	<0.0088	<0.0085	<0.0075	<0.0099
1,1-Dichloroethene	mg/kg	<0.019	<0.018	<0.020	<0.023	<0.024	<0.023	<0.020	<0.027
1,2,4-Trichlorobenzene	mg/kg	<0.014	<0.013	<0.015	<0.017	<0.017	<0.017	<0.015	<0.020
1,2,4-Trimethylbenzene	mg/kg	<0.013	<0.012	<0.013	<0.016	<0.016	<0.015	<0.013	<0.018
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0066	<0.0063	<0.0071	<0.0082	<0.0083	<0.0080	<0.0070	<0.0093
1,2-Dichlorobenzene	mg/kg	<0.0025	<0.0024	<0.0027	<0.0032	<0.0032	<0.0031	<0.0027	<0.0036
1,2-Dichloroethane	mg/kg	<0.0069	<0.0066	<0.0074	<0.0086	<0.0087	<0.0083	<0.0073	<0.0097
1,3,5-Trimethylbenzene	mg/kg	<0.010	<0.0096	<0.011	<0.012	<0.013	<0.012	<0.011	<0.014
1,3-Dichlorobenzene	mg/kg	<0.0023	<0.0022	<0.0025	<0.0028	<0.0029	<0.0028	<0.0024	<0.0032
1,4-Dichlorobenzene	mg/kg	<0.0039	<0.0037	<0.0042	<0.0048	<0.0049	<0.0047	<0.0041	<0.0055
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.033	<0.032	<0.036	<0.042	<0.042	<0.040	<0.035	<0.047
2-Hexanone	mg/kg	<0.014	<0.014	<0.016	<0.018	<0.018	<0.017	<0.015	<0.020
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.013	<0.012	<0.014	<0.016	<0.016	<0.016	<0.014	<0.018
Acetone	mg/kg	<0.39	<0.37	<0.42	<0.49	<0.49	<0.47	<0.41	<0.55
Benzene	mg/kg	<0.0035	<0.0034	<0.0038	<0.0044	<0.0044	<0.0043	<0.0038	<0.0050
Bromodichloromethane	mg/kg	<0.022	<0.021	<0.023	<0.027	<0.027	<0.026	<0.023	<0.030
Bromoform	mg/kg	<0.095	<0.091	<0.10	<0.12	<0.12	<0.11	<0.10	<0.13
Bromomethane (Methyl bromide)	mg/kg	<0.074	<0.070	<0.079	<0.091	<0.092	<0.089	<0.078	<0.10
Carbon tetrachloride	mg/kg	<0.030	<0.029	<0.032	<0.037	<0.038	<0.036	<0.032	<0.042
Chlorobenzene	mg/kg	<0.0035	<0.0034	<0.0038	<0.0044	<0.0044	<0.0043	<0.0038	<0.0050

Table 3A

Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-20'	SB208-25'	SB208-30'	SB208-35'	SB208-40'	SB208-45'	SB208-50'	FD3
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs	50 ft bgs Duplicate

Parameters	Unit								
Volatile Organic Compounds (Continued)									
Chloroethane	mg/kg	<0.033	<0.031	<0.035	<0.041	<0.041	<0.039	<0.035	<0.046
Chloroform (Trichloromethane)	mg/kg	0.035 J	<0.030	<0.034	<0.039	<0.039	<0.038	<0.033	<0.044
Chloromethane (Methyl chloride)	mg/kg	<0.015	<0.014	<0.016	<0.019	<0.019	<0.018	<0.016	<0.021
cis-1,2-Dichloroethene	mg/kg	<0.010	<0.0099	<0.011	<0.013	<0.013	<0.013	<0.011	<0.015
cis-1,3-Dichloropropene	mg/kg	<0.0090	<0.0086	<0.0097	<0.011	<0.011	<0.011	<0.0095	<0.013
Dibromochloromethane	mg/kg	<0.0073	<0.0070	<0.0078	<0.0091	<0.0091	<0.0088	<0.0077	<0.010
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.020	<0.019	<0.022	<0.025	<0.026	<0.025	<0.022	<0.029
Ethylbenzene	mg/kg	<0.0034	<0.0033	<0.0037	<0.0043	<0.0043	<0.0041	<0.0036	<0.0048
Hexachlorobutadiene	mg/kg	<0.015	<0.015	<0.016	<0.019	<0.019	<0.019	<0.016	<0.022
m&p-Xylenes	mg/kg	<0.0078	<0.0074	<0.0084	<0.0097	<0.0098	<0.0094	<0.0082	<0.011
Methyl tert butyl ether (MTBE)	mg/kg	<0.0075	<0.0071	<0.0080	<0.0093	<0.0094	<0.0090	<0.0079	<0.011
Methylene chloride	mg/kg	<0.12	<0.11	<0.13	<0.15	<0.15	<0.14	<0.13	<0.17
Naphthalene	mg/kg	<0.059	<0.056	<0.063	<0.073	<0.074	<0.071	<0.062	<0.083
o-Xylene	mg/kg	<0.015	<0.014	<0.016	<0.018	<0.018	<0.018	<0.015	<0.020
Styrene	mg/kg	<0.0029	<0.0027	<0.0031	<0.0036	<0.0036	<0.0035	<0.0030	<0.0040
Tetrachloroethene	mg/kg	<0.022	<0.021	<0.024	<0.028	<0.028	<0.027	<0.023	<0.031
Tetrahydrofuran	mg/kg	<0.091	<0.087	<0.098	<0.11	<0.11	<0.11	<0.097	<0.13
Toluene	mg/kg	<0.015	<0.015	<0.016	<0.019	<0.019	<0.019	<0.016	<0.022
trans-1,2-Dichloroethene	mg/kg	<0.029	<0.028	<0.032	<0.037	<0.037	<0.035	<0.031	<0.041
trans-1,3-Dichloropropene	mg/kg	<0.0087	<0.0083	<0.0094	<0.011	<0.011	<0.011	<0.0092	<0.012
Trichloroethene	mg/kg	<0.0097	<0.0093	<0.010	<0.012	<0.012	<0.012	<0.010	<0.014
Trichlorofluoromethane (CFC-11)	mg/kg	<0.11	<0.10	<0.12	<0.14	<0.14	<0.13	<0.12	<0.15
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.073	<0.070	<0.078	<0.091	<0.091	<0.088	<0.077	<0.10

Table 3A
Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-20'	SB208-25'	SB208-30'	SB208-35'	SB208-40'	SB208-45'	SB208-50'	SB-208 FD3
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	20 ft bgs	25 ft bgs	30 ft bgs	35 ft bgs	40 ft bgs	45 ft bgs	50 ft bgs	50 ft bgs Duplicate

Parameters	Unit								
Volatile Organic Compounds (Continued)									
Vinyl acetate	mg/kg	<0.0073	<0.0069	<0.0078	<0.0091	<0.0091	<0.0088	<0.0077	<0.010
Vinyl chloride	mg/kg	<0.012	<0.012	<0.013	<0.015	<0.016	<0.015	<0.013	<0.017
General Chemistry									
Percent moisture	%	18.2	16.1	22.4	35.9	30.0	29.7	22.1	35.4
TOC average duplicates	mg/kg	<360 J	<360 J	<620 J	<360 J	<360 J	<44	<650 J	<420 J

Table 3A
Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-55'	SB208-60'	SB208-65'	SB208-70'	SB208-75'	SB208-80'	SB208-85'	SB208-90'
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	75 ft bgs	80 ft bgs	85 ft bgs	90 ft bgs

Parameters	Unit	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg	<0.038	<0.038	<0.037	<0.035	<0.034	<0.035	<0.033	<0.035
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.014	<0.014	<0.013	<0.013	<0.013	<0.013	<0.013
1,1,2-Trichloroethane	mg/kg	<0.0097	<0.0098	<0.0095	<0.0089	<0.0087	<0.0089	<0.0085	<0.0089
1,1-Dichloroethane	mg/kg	<0.0091	<0.0092	<0.0089	<0.0083	<0.0082	<0.0084	<0.0080	<0.0083
1,1-Dichloroethene	mg/kg	<0.024	<0.025	<0.024	<0.022	<0.022	<0.022	<0.021	<0.022
1,2,4-Trichlorobenzene	mg/kg	<0.018	<0.018	<0.018	<0.017	<0.016	<0.017	<0.016	<0.016
1,2,4-Trimethylbenzene	mg/kg	<0.016	<0.016	<0.016	<0.015	<0.015	<0.015	<0.014	<0.015
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	<0.0085	<0.0086	<0.0084	<0.0078	<0.0077	<0.0079	<0.0075	<0.0078
1,2-Dichlorobenzene	mg/kg	<0.0033	<0.0033	<0.0032	<0.0030	<0.0030	<0.0030	<0.0029	<0.0030
1,2-Dichloroethane	mg/kg	<0.0089	<0.0090	<0.0088	<0.0082	<0.0080	<0.0082	<0.0078	<0.0082
1,3,5-Trimethylbenzene	mg/kg	<0.013	<0.013	<0.013	<0.012	<0.012	<0.012	<0.011	<0.012
1,3-Dichlorobenzene	mg/kg	<0.0029	<0.0030	<0.0029	<0.0027	<0.0027	<0.0027	<0.0026	<0.0027
1,4-Dichlorobenzene	mg/kg	<0.0050	<0.0051	<0.0049	<0.0046	<0.0045	<0.0046	<0.0044	<0.0046
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	<0.043	<0.044	<0.042	<0.040	<0.039	<0.040	<0.038	<0.039
2-Hexanone	mg/kg	<0.019	<0.019	<0.018	<0.017	<0.017	<0.017	<0.016	<0.017
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	<0.017	<0.017	<0.017	<0.015	<0.015	<0.016	<0.015	<0.015
Acetone	mg/kg	<0.50	<0.51	<0.50	<0.46	<0.45	<0.46	<0.44	<0.46
Benzene	mg/kg	<0.0046	<0.0046	<0.0045	<0.0042	<0.0041	<0.0042	<0.0040	<0.0042
Bromodichloromethane	mg/kg	<0.028	<0.028	<0.027	<0.025	<0.025	<0.026	<0.024	<0.025
Bromoform	mg/kg	<0.12	<0.12	<0.12	<0.11	<0.11	<0.11	<0.11	<0.11
Bromomethane (Methyl bromide)	mg/kg	<0.095	<0.096	<0.093	<0.087	<0.086	<0.087	<0.083	<0.087
Carbon tetrachloride	mg/kg	<0.039	<0.039	<0.038	<0.036	<0.035	<0.036	<0.034	<0.035
Chlorobenzene	mg/kg	<0.0046	<0.0046	<0.0045	<0.0042	<0.0041	<0.0042	<0.0040	<0.0042

Table 3A

Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-55'	SB208-60'	SB208-65'	SB208-70'	SB208-75'	SB208-80'	SB208-85'	SB208-90'
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	75 ft bgs	80 ft bgs	85 ft bgs	90 ft bgs

Parameters	Unit								
Volatile Organic Compounds (Continued)									
Chloroethane	mg/kg	<0.042	<0.043	<0.041	<0.039	<0.038	<0.039	<0.037	<0.039
Chloroform (Trichloromethane)	mg/kg	<0.040	0.043 J	<0.040	<0.037	<0.037	<0.037	<0.036	<0.037
Chloromethane (Methyl chloride)	mg/kg	<0.019	<0.020	<0.019	<0.018	<0.018	<0.018	<0.017	<0.018
cis-1,2-Dichloroethene	mg/kg	<0.013	<0.014	<0.013	<0.012	<0.012	<0.012	<0.012	<0.012
cis-1,3-Dichloropropene	mg/kg	<0.012	<0.012	<0.011	<0.011	<0.010	<0.011	<0.010	<0.011
Dibromochloromethane	mg/kg	<0.0094	<0.0095	<0.0092	<0.0086	<0.0085	<0.0087	<0.0083	<0.0086
Dichlorodifluoromethane (CFC-12)	mg/kg	<0.026	<0.027	<0.026	<0.024	<0.024	<0.024	<0.023	<0.024
Ethylbenzene	mg/kg	<0.0044	<0.0045	<0.0043	<0.0040	<0.0040	<0.0041	<0.0039	<0.0040
Hexachlorobutadiene	mg/kg	<0.020	<0.020	<0.019	<0.018	<0.018	<0.018	<0.017	<0.018
m&p-Xylenes	mg/kg	<0.010	<0.010	<0.0099	<0.0092	<0.0091	<0.0092	<0.0088	<0.0092
Methyl tert butyl ether (MTBE)	mg/kg	<0.0096	<0.0097	<0.0095	<0.0088	<0.0087	<0.0089	<0.0085	<0.0088
Methylene chloride	mg/kg	<0.15	<0.15	<0.15	<0.14	<0.14	<0.14	<0.13	<0.14
Naphthalene	mg/kg	<0.076	<0.077	<0.075	<0.070	<0.068	<0.070	<0.067	<0.069
o-Xylene	mg/kg	<0.019	<0.019	<0.018	<0.017	<0.017	<0.017	<0.017	<0.017
Styrene	mg/kg	<0.0037	<0.0037	<0.0036	<0.0034	<0.0033	<0.0034	<0.0033	<0.0034
Tetrachloroethene	mg/kg	<0.028	<0.029	<0.028	<0.026	<0.026	<0.026	<0.025	<0.026
Tetrahydrofuran	mg/kg	<0.12	<0.12	<0.12	<0.11	<0.11	<0.11	<0.10	<0.11
Toluene	mg/kg	<0.020	<0.020	<0.019	<0.018	<0.018	<0.018	<0.017	<0.018
trans-1,2-Dichloroethene	mg/kg	<0.038	<0.038	<0.037	<0.035	<0.034	<0.035	<0.033	<0.035
trans-1,3-Dichloropropene	mg/kg	<0.011	<0.011	<0.011	<0.010	<0.010	<0.010	<0.0099	<0.010
Trichloroethene	mg/kg	<0.012	<0.013	<0.012	<0.011	<0.011	<0.012	<0.011	<0.011
Trichlorofluoromethane (CFC-11)	mg/kg	<0.14	<0.14	<0.14	<0.13	<0.13	<0.13	<0.12	<0.13
Trifluorotrchloroethane (CFC-113)	mg/kg	<0.094	<0.095	<0.092	<0.086	<0.085	<0.087	<0.083	<0.086

Table 3A
Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019

Location ID:	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208	SB-208
Sample Name:	SB208-55'	SB208-60'	SB208-65'	SB208-70'	SB208-75'	SB208-80'	SB208-85'	SB208-90'
Sample Date:	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
Depth:	55 ft bgs	60 ft bgs	65 ft bgs	70 ft bgs	75 ft bgs	80 ft bgs	85 ft bgs	90 ft bgs

Parameters	Unit								
Volatile Organic Compounds (Continued)									
Vinyl acetate	mg/kg	<0.0094	<0.0095	<0.0092	<0.0086	<0.0085	<0.0086	<0.0083	<0.0086
Vinyl chloride	mg/kg	<0.016	<0.016	<0.016	<0.015	<0.014	<0.015	<0.014	<0.015
General Chemistry									
Percent moisture	%	32.0	36.8	36.2	33.5	31.2	30.3	31.0	28.8
TOC average duplicates	mg/kg	<44	<360 J	<360 J	<360 J	<44	<360 J	<360 J	<360 J

Notes:

- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration
- J+ - Estimated concentration; implied high bias
- TOC - Total Organic Carbon

Table 3B

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

	Location ID:	SB-206	SB-208
	Sample Name:	SB206-GW	SB208-GW
	Sample Date:	06/19/2019	06/20/2019
Parameters			
	Unit		
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.39
1,1,1-Trichloroethane	µg/L	<0.14	<0.27
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.34
1,1,2-Trichloroethane	µg/L	<0.18	<0.36
1,1-Dichloroethane	µg/L	<0.17	<0.34
1,1-Dichloroethene	µg/L	<0.16	<0.32
1,1-Dichloropropene	µg/L	<0.20	<0.40
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.41
1,2,3-Trichloropropane	µg/L	<0.26	<0.51
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.40
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.39
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<3.3
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.48
1,2-Dichlorobenzene	µg/L	<0.14	<0.27
1,2-Dichloroethane	µg/L	<0.22	<0.44
1,2-Dichloroethene (total)	µg/L	<0.27	<0.54
1,2-Dichloropropane	µg/L	<0.16	<0.33
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.24
1,3-Dichlorobenzene	µg/L	<0.16	<0.32
1,3-Dichloropropane	µg/L	<0.070	<0.14
1,4-Dichlorobenzene	µg/L	<0.17	<0.34
1,4-Dioxane	µg/L	<16.3	<32.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.38
2,2-Dichloropropane	µg/L	<0.17	<0.34
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<2.0
2-Chlorotoluene	µg/L	<0.16	<0.33
2-Hexanone	µg/L	<0.88	<1.8
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.30
4-Chlorotoluene	µg/L	<0.13	<0.27
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.84
Acetone	µg/L	<9.2	<18.5
Acrolein	µg/L	<1.2	<2.4

Table 3B

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

	Location ID:	SB-206	SB-208
	Sample Name:	SB206-GW	SB208-GW
	Sample Date:	06/19/2019	06/20/2019
Parameters			
	Unit		
Volatile Organic Compounds (Continued)			
Acrylonitrile	µg/L	<0.91	<1.8
Benzene	µg/L	<0.10	2.3
Bromobenzene	µg/L	<0.21	<0.41
Bromodichloromethane	µg/L	<0.22	<0.43
Bromoform	µg/L	<0.80	<1.6
Bromomethane (Methyl bromide)	µg/L	<1.8	<3.6
Carbon disulfide	µg/L	<0.078	<0.16
Carbon tetrachloride	µg/L	0.50 J	<0.38
Chlorobenzene	µg/L	<0.17	<0.34
Chlorobromomethane	µg/L	<0.27	<0.55
Chloroethane	µg/L	<0.49	<0.98
Chloroform (Trichloromethane)	µg/L	0.87 J	<0.90
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.31
cis-1,2-Dichloroethene	µg/L	<0.15	<0.31
cis-1,3-Dichloropropene	µg/L	<0.20	<0.41
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.30
Dibromochloromethane	µg/L	<0.12	<0.25
Dibromomethane	µg/L	<0.16	<0.33
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.47
Dichlorofluoromethane	µg/L	<0.14	<0.28
Diisopropyl ether	µg/L	<0.13	<0.27
Ethylbenzene	µg/L	<0.14	0.48 J
Hexachlorobutadiene	µg/L	<0.31	<0.62
Isopropyl benzene	µg/L	<0.18	<0.37
m&p-Xylenes	µg/L	<0.31	<0.62
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.32
Methylene chloride	µg/L	<0.98	<2.0
N-Butylbenzene	µg/L	<0.24	<0.48
N-Propylbenzene	µg/L	<0.10	<0.20
Naphthalene	µg/L	<0.48	<0.96
o-Xylene	µg/L	<0.16	<0.32
Styrene	µg/L	<0.19	<0.37

Table 3B

**Analytical Results Summary
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

	Location ID:	SB-206	SB-208
	Sample Name:	SB206-GW	SB208-GW
	Sample Date:	06/19/2019	06/20/2019
Parameters			
	Unit		
Volatile Organic Compounds (Continued)			
tert-Amyl methyl ether	µg/L	<0.11	<0.22
tert-Butyl alcohol	µg/L	<1.2	<2.5
tert-Butyl ethyl ether	µg/L	<0.18	<0.36
tert-Butylbenzene	µg/L	<0.15	<0.30
Tetrachloroethene	µg/L	<0.17	<0.34
Tetrahydrofuran	µg/L	<2.2	<4.4
Toluene	µg/L	<0.083	2.4
trans-1,2-Dichloroethene	µg/L	<0.12	<0.23
trans-1,3-Dichloropropene	µg/L	<0.18	<0.36
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<4.1
Trichloroethene	µg/L	<0.15	<0.30
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.46
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.43
Vinyl acetate	µg/L	<1.1	<2.2
Vinyl chloride	µg/L	<0.092	<0.18
Xylenes (total)	µg/L	<0.31	<0.62

Notes:

< - Not detected at the associated reporting limit

J - Estimated concentration

Table 4

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOCs	Benzene	07/04/2019	0.0082 J	SB207-50'	0.0041 J	<0.0082 J	mg/kg
General Chemistry	TOC average duplicates	07/09/2019	360 J	SB206-5'	1400 J	<1400 J	mg/kg
				SB206-70'	78 J	<360 J	mg/kg
				FD1	770 J	<770 J	mg/kg
				FD2	250 J	<360 J	mg/kg
				SB208-5'	610 J	<610 J	mg/kg
				SB208-10'	430 J	<430 J	mg/kg
				SB208-15'	310 J	<360 J	mg/kg
				SB208-20'	300 J	<360 J	mg/kg
				SB208-25'	320 J	<360 J	mg/kg
				SB208-30'	620 J	<620 J	mg/kg
				SB208-35'	79 J	<360 J	mg/kg
				SB208-40'	150 J	<360 J	mg/kg
				SB208-50'	650 J	<650 J	mg/kg
				SB208-60'	270 J	<360 J	mg/kg
				SB206-15'	160 J	<360 J	mg/kg
				SB208-65'	98 J	<360 J	mg/kg
				SB208-70'	300 J	<360 J	mg/kg
				SB208-80'	130 J	<360 J	mg/kg
				SB208-85'	91 J	<360 J	mg/kg
				SB208-90'	270 J	<360 J	mg/kg
	FD3	420 J	<420 J	mg/kg			

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- TOC - Total Organic Carbon
- VOCs - Volatile Organic Compounds

Table 5

**Qualified Sample Data Due to Outlying of Surrogate Recoveries
Additional Soil Borings
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
June 2019**

Parameter	Sample ID	Surrogate	Surrogate	<u>Control Limits</u>	Analyte	Qualified Result	Units
			% Recovery	% Recovery			
VOCs	SB206-40'	1,2-Dichloroethane-d4	131	75-125	Methylene chloride	0.14 J+	mg/kg

Notes:

- J+ - Estimated concentration; implied high bias
VOCs - Volatile Organic Compounds



Memorandum

August 22, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/354-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10483755, 10484200, 10484705, 10484913 and 10486438
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
July – August 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Basalt Packer Sampling at the Cenex Harvest Lease Site in Freeman, Washington during July and August 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, and recovery data from surrogate spikes, laboratory control samples, matrix spikes, and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of one sample for nitrate (as N) analysis. The associated sample result was qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

The carbon tetrachloride result for sample MW29-GW-071919 was performed on a container with significant headspace (>6mm). The result was qualified as estimated due to the implied low bias (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 6).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix



effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with two exceptions. Where a high recovery was found the associated sample results were non-detect and were not impacted. Where a low recovery was found the associated sample results were qualified as estimated due to the implied low bias (see Table 7).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were non-detect and were qualified as estimated due to the implied low bias (see Table 8).



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". The MS samples had low sulfide recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 8).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

9. Field QA/QC Samples

The field QA/QC consisted of four trip blank samples.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, four trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blank were qualified as non-detect due to contamination as evidenced by the blank (see Table 9).

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments		
							Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs			
MW27-GW-072519	MW-27	Water	233	243	07/25/2019	13:00	X	X	X	X	X	X	X	X	X	X			
MW28-GW-071819	MW-28	Water	180	190	07/18/2019	14:10	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD		
MW29-GW-071919	MW-29	Water	120	140	07/19/2019	11:00	X	X	X	X	X	X	X	X	X	X	DUP		
MW31-GW-080719	MW-31	Water	380	385	08/07/2019	12:30	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD		
MW32-GW-072519	MW-32	Water	284	294	07/25/2019	10:30	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD		
MW33-GW-072619	MW-33	Water	254	274	07/26/2019	11:00	X	X		X	X						DUP - MS		
TB-071819	--	Water	--	--	07/18/2019	--											X	Trip Blank	
TB-071919	--	Water	--	--	07/19/2019	--												X	Trip Blank
TB-072519	--	Water	--	--	07/25/2019	--												X	Trip Blank
Trip Blank	--	Water	--	--	08/07/2019	--												X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- MS - Matrix Spike
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

Analytical Methods
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Location ID:	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Sample Name:	MW27-GW-072519	MW28-GW-071819	MW29-GW-071919	MW31-GW-080719	MW32-GW-072519	MW33-GW-072619
Sample Date:	07/25/2019	07/18/2019	07/19/2019	08/07/2019	07/25/2019	07/26/2019
Depth:	233-243 ft bgs	180-190 ft bgs	120-140 ft bgs	380-385 ft bgs	284-294 ft bgs	254-274 ft bgs

Parameters	Unit	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	--
1,1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	--
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	--
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	--
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	--
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	--
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	--
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	--
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	--
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	--
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	--
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	--
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	--

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Location ID:	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Sample Name:	MW27-GW-072519	MW28-GW-071819	MW29-GW-071919	MW31-GW-080719	MW32-GW-072519	MW33-GW-072619
Sample Date:	07/25/2019	07/18/2019	07/19/2019	08/07/2019	07/25/2019	07/26/2019
Depth:	233-243 ft bgs	180-190 ft bgs	120-140 ft bgs	380-385 ft bgs	284-294 ft bgs	254-274 ft bgs

Parameters	Unit	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Volatile Organic Compounds (Continued)							
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	--
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	--
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	--
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	--
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	--
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	--
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	--
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	--
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	--
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	--
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	--
Carbon tetrachloride	µg/L	15.6	314	399 J-	<0.19	<0.19	--
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	--
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	--
Chloroform (Trichloromethane)	µg/L	5.7	15.1	22.1	<0.45	<0.45	--
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	--
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Location ID:	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Sample Name:	MW27-GW-072519	MW28-GW-071819	MW29-GW-071919	MW31-GW-080719	MW32-GW-072519	MW33-GW-072619
Sample Date:	07/25/2019	07/18/2019	07/19/2019	08/07/2019	07/25/2019	07/26/2019
Depth:	233-243 ft bgs	180-190 ft bgs	120-140 ft bgs	380-385 ft bgs	284-294 ft bgs	254-274 ft bgs

Parameters	Unit	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Volatile Organic Compounds (Continued)							
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	--
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	--
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	--
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	--
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	--
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	--
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	--
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	--
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	--
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	--
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	--
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	--
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	--
tert-Amyl methyl ether	µg/L	<0.11	<0.11 J-	<0.11 J-	<0.11	<0.11	--
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	--
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	--
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	--
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	--
Toluene	µg/L	<0.31 J	0.14 J	0.20 J	<0.083	<0.31 J	--
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	--
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	--
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	--
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	--

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Location ID:	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Sample Name:	MW27-GW-072519	MW28-GW-071819	MW29-GW-071919	MW31-GW-080719	MW32-GW-072519	MW33-GW-072619
Sample Date:	07/25/2019	07/18/2019	07/19/2019	08/07/2019	07/25/2019	07/26/2019
Depth:	233-243 ft bgs	180-190 ft bgs	120-140 ft bgs	380-385 ft bgs	284-294 ft bgs	254-274 ft bgs

Parameters	Unit	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Volatile Organic Compounds (Continued)							
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	--
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	--
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	--
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	--
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	--
Dissolved Gases							
Ethane	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	--
Ethene	µg/L	<2.9	<2.9	<2.9	<2.9	<2.9	--
Methane	µg/L	<4.9	<4.9	<4.9	<4.9	<4.9	--
Metals							
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	--
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	--
Barium (dissolved)	µg/L	42.3	11.6	16.5	154	41.0	--
Beryllium (dissolved)	µg/L	0.21 J	<0.12	0.19 J	<4.9 J	<0.12	--
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<1.0 J	<0.28	--
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	38.5	<0.66	--
Cobalt (dissolved)	µg/L	1.1 J	0.97 J	0.86 J	<8.8 J	1.2 J	--
Copper (dissolved)	µg/L	1.7 J	6.2 J	2.1 J	13.1	1.3 J	--
Lead (dissolved)	µg/L	<2.0	2.8 J	<2.0	56.3	<2.0	--
Mercury (dissolved)	µg/L	0.10 J	<0.093	<0.093	<0.093	<0.093	--
Molybdenum (dissolved)	µg/L	5.8 J	<3.8	<3.8	5.2 J	4.4 J	--
Nickel (dissolved)	µg/L	2.6 J	<1.1	<1.1	19.1 J	<1.1	--
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	--

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Location ID:	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Sample Name:	MW27-GW-072519	MW28-GW-071819	MW29-GW-071919	MW31-GW-080719	MW32-GW-072519	MW33-GW-072619
Sample Date:	07/25/2019	07/18/2019	07/19/2019	08/07/2019	07/25/2019	07/26/2019
Depth:	233-243 ft bgs	180-190 ft bgs	120-140 ft bgs	380-385 ft bgs	284-294 ft bgs	254-274 ft bgs

Parameters	Unit	MW-27	MW-28	MW-29	MW-31	MW-32	MW-33
Metals (Continued)							
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	--
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5	--
Vanadium (dissolved)	µg/L	10.8 J	8.9 J	7.8 J	81.2	0.98 J	--
Zinc (dissolved)	µg/L	10.7 J	28.4	9.9 J	49.2	12.7 J	--
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	150	166	180	137	166	221
Chemical oxygen demand (COD)	mg/L	19.8 J	<17.0	18.8 J	89.6	<17.0	<17.0
Chloride	mg/L	4.2	6.9 J-	9.0	2.9	2.5	--
Nitrate (as N)	mg/L	0.18	4.7	4.7 J	0.15	<0.012	--
Nitrite/Nitrate	mg/L	<0.018	4.7	4.8	0.12	<0.018	1.1
Sulfate	mg/L	42.7	23.6 J-	21.0	20.3	7.1	--
Sulfide	mg/L	<0.0054	<0.0054	0.0058 J	<0.14	<0.0054	<0.0054 J-
Total dissolved solids (TDS)	mg/L	333	286	308	390	222	318
Total organic carbon (TOC)	mg/L	3.5	1.1	1.3	1.1	1.2	--

Notes:

"--" - Not analyzed

< - Not detected at the associated reporting limit

< () J - Not detected; associated reporting limit is estimated

< () J- - Not detected; associated reporting limit is estimated due to implied low bias

ft bgs - Feet below ground surface

J - Estimated concentration

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 July - August 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW29-GW-071919	48 hours	>96 hours	Nitrate (as N)	4.7 J+	mg/L

Notes:

J+ - Estimated concentration; implied high bias

Table 5

**Qualified Sample Data Due to Headspace (>6mm)
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019**

Parameter	Sample ID	Analyte	Qualified Result	Units
VOCs	MW29-GW-071919	Carbon tetrachloride	399 J-	µg/L

Notes:

- J- - Estimated concentration; implied low bias
- VOCs - Volatile Organic Compounds

Table 6

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Beryllium (dissolved)	08/12/2019	0.60 J	MW31-GW-080719	4.9 J	<4.9 J	µg/L
	Cadmium (dissolved)	08/12/2019	0.56 J	MW31-GW-080719	1.0 J	<1.0 J	µg/L
	Cobalt (dissolved)	08/12/2019	0.76 J	MW31-GW-080719	8.8 J	<8.8 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 7

**Qualified Sample Results Due to Outlying Laboratory Control Sample Results
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 July - August 2019**

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	tert-Amyl methyl ether	07/25/2019	74	75-125	MW28-GW-071819	<0.11 J-	µg/L
					MW29-GW-071919	<0.11 J-	µg/L

Notes:

- LCS - Laboratory Control Sample
 <() J- - Not detected; associated reporting limit is estimated due to implied low bias
 VOCs - Volatile Organic Compounds

Table 8

**Qualified Sample Results Due to Outlying MS or MS/MSD Results
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD		
General Chemistry	MW33-GW-072619	Sulfide	44	--	--	75-125	--	<0.0054 J-	mg/L
	MW28-GW-071819	Chloride	82	86	3	90-110	3	6.9 J-	mg/L
		Sulfate	59	70	4	70-110	4	23.6 J-	mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J- - Estimated concentration; implied low bias
- <() J- - Not detected; associated reporting limit is estimated due to implied low bias
- "--" - Not Applicable

Table 9

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July - August 2019

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result *	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	07/25/2019	Toluene	0.31 J	MW32-GW-072519	0.27 J	<0.31 J	µg/L
				MW27-GW-072519	0.28 J	<0.31 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

September 18, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/374-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10487825, 10488833 and 10489767
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
August 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Basalt Packer Sampling at the Cenex Harvest Lease Site in Freeman, Washington during August 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times.

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C). The MW36-GW-081619 sample containers for volatile organic compound (VOC) and dissolved gas analysis were left out of the refrigerator overnight. The associated sample detections were qualified as estimated and the associated non-detect results were rejected (see Table 4).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of two analytes present at a low concentrations. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of a few high recoveries. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 6).

7. Field QA/QC Samples

The field QA/QC consisted of three trip blank samples.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, three trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of a few analytes present at low concentrations. The associated sample results with



concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 7).

8. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the reporting limit (RL) but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

9. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

**Sample Collection and Analysis Summary
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 August 2019**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments		
							Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs				
MW27-GW-083019	MW-27	Water	238	--	08/30/2019	12:30	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW33-GW-083019	MW-33	Water	264	--	08/30/2019	14:45	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW35-Start	MW-35	Water	162	--	08/22/2019	08:15													X	
MW35-Mid	MW-35	Water	162	--	08/22/2019	11:45													X	
MW35-GW-082219	MW-35	Water	162	--	08/22/2019	16:15	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW36-GW-081619	MW-36	Water	65	75	08/16/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Trip Blank	--	Water	--	--	08/16/2019	--													X	Trip Blank
Trip Blank	--	Water	--	--	08/22/2019	--													X	Trip Blank
Trip Blank	--	Water	--	--	08/30/2019	--													X	Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

Analytical Methods
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019

Location ID:	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36	
Sample Name:	MW27-GW-083019	MW33-GW-083019	MW35-GW-082219	MW35-Mid	MW35-Start	MW36-GW-081619	
Sample Date:	08/30/2019	08/30/2019	08/22/2019	08/22/2019	08/22/2019	08/16/2019	
Depth:	238 ft bgs	264 ft bgs	162 ft bgs	162 ft bgs	162 ft bgs	65-75 ft bgs	
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	R
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	R
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	R
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	R
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	R
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	R
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	R
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	R
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	R
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	R
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	R
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	R
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	R
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	R
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	R
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	R
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	R
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	R
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3	R
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	R
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	R
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	R
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R

Table 3
Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019

Location ID:	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36	
Sample Name:	MW27-GW-083019	MW33-GW-083019	MW35-GW-082219	MW35-Mid	MW35-Start	MW36-GW-081619	
Sample Date:	08/30/2019	08/30/2019	08/22/2019	08/22/2019	08/22/2019	08/16/2019	
Depth:	238 ft bgs	264 ft bgs	162 ft bgs	162 ft bgs	162 ft bgs	65-75 ft bgs	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	R
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	R
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	R
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	R
Acetone	µg/L	12.1 J	<9.2	<9.2	<9.2	<9.2	R
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	R
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	R
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	R
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	R
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	R
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	R
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	R
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	<0.078	R
Carbon tetrachloride	µg/L	11.7	1.1	38.0	40.0	34.1	116 J
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	R
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	R
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	R
Chloroform (Trichloromethane)	µg/L	5.6	<0.45	2.3	2.5	2.6	8.5 J
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	R
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	R
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	R
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	R
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	R
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	R
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	R

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019

Location ID:	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36
Sample Name:	MW27-GW-083019	MW33-GW-083019	MW35-GW-082219	MW35-Mid	MW35-Start	MW36-GW-081619
Sample Date:	08/30/2019	08/30/2019	08/22/2019	08/22/2019	08/22/2019	08/16/2019
Depth:	238 ft bgs	264 ft bgs	162 ft bgs	162 ft bgs	162 ft bgs	65-75 ft bgs
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	R
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	R
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	R
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	R
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	R
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	R
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	R
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	R
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	R
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	R
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	R
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	R
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	R
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	R
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	R
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	R
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	R
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	R
Toluene	µg/L	<0.19 J	<0.083	<0.083	<0.083	<1.5 J
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	R
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	R
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	R
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	R
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	R
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	R
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	R

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019

Location ID:	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36	
Sample Name:	MW27-GW-083019	MW33-GW-083019	MW35-GW-082219	MW35-Mid	MW35-Start	MW36-GW-081619	
Sample Date:	08/30/2019	08/30/2019	08/22/2019	08/22/2019	08/22/2019	08/16/2019	
Depth:	238 ft bgs	264 ft bgs	162 ft bgs	162 ft bgs	162 ft bgs	65-75 ft bgs	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	R
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	R
Dissolved Gases							
Ethane	µg/L	<4.07	<4.07	<4.07	--	--	R
Ethene	µg/L	<4.26	<4.26	<4.26	--	--	R
Methane	µg/L	<2.91	<2.91	<2.91	--	--	R
Metals							
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	--	--	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	--	--	<3.8
Barium (dissolved)	µg/L	32.8	40.6	25.7	--	--	29.6
Beryllium (dissolved)	µg/L	0.17 J	<0.12	<0.12	--	--	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	--	--	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	--	--	1.8 J
Cobalt (dissolved)	µg/L	0.54 J	1.8 J	<0.50	--	--	<0.50
Copper (dissolved)	µg/L	<4.6 J	<1.2	1.4 J	--	--	<1.2
Lead (dissolved)	µg/L	<2.0	2.4 J	<2.0	--	--	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	--	--	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	--	--	4.7 J
Nickel (dissolved)	µg/L	<1.1	<1.1	2.2 J	--	--	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	--	--	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	--	--	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	--	--	<5.5
Vanadium (dissolved)	µg/L	9.7 J	0.64 J	11.7 J	--	--	7.8 J
Zinc (dissolved)	µg/L	8.8 J	<6.3	432	--	--	<6.3

Table 3

**Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Location ID:	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36
Sample Name:	MW27-GW-083019	MW33-GW-083019	MW35-GW-082219	MW35-Mid	MW35-Start	MW36-GW-081619
Sample Date:	08/30/2019	08/30/2019	08/22/2019	08/22/2019	08/22/2019	08/16/2019
Depth:	238 ft bgs	264 ft bgs	162 ft bgs	162 ft bgs	162 ft bgs	65-75 ft bgs

Parameters	Unit	MW-27	MW-33	MW-35	MW-35	MW-35	MW-36
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	152	164	149	--	--	168
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	--	--	<17.0
Chloride	mg/L	3.6	2.3	8.6	--	--	14.9 J-
Nitrate (as N)	mg/L	0.48	<0.012	1.7 J-	--	--	3.7 J-
Nitrite/Nitrate	mg/L	0.57	<0.018	1.6	--	--	3.4
Sulfate	mg/L	28.7	5.7	12.0	--	--	19.1
Sulfide	mg/L	<0.14	<0.0054	<0.0054	--	--	<0.0054
Total dissolved solids (TDS)	mg/L	345	229	240	--	--	304
Total organic carbon (TOC)	mg/L	1.1	0.65 J	2.0	--	--	1.3

Notes:

- "--" - Not analyzed
- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J - Estimated concentration
- "J-" - Estimated concentration; result may be biased low
- R - Rejected

Table 4

**Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Sample ID	High Temperature While Stored at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	MW36-GW-081619	~20	0-6	1,1,1,2-Tetrachloroethane	R	
				1,1,1-Trichloroethane	R	
				1,1,2,2-Tetrachloroethane	R	
				1,1,2-Trichloroethane	R	
				1,1-Dichloroethane	R	
				1,1-Dichloroethene	R	
				1,1-Dichloropropene	R	
				1,2,3-Trichlorobenzene	R	
				1,2,3-Trichloropropane	R	
				1,2,4-Trichlorobenzene	R	
				1,2,4-Trimethylbenzene	R	
				1,2-Dibromo-3-chloropropane (DBCP)	R	
				1,2-Dibromoethane (Ethylene dibromide)	R	
				1,2-Dichlorobenzene	R	
				1,2-Dichloroethane	R	
				1,2-Dichloroethene (total)	R	
				1,2-Dichloropropane	R	
				1,3,5-Trimethylbenzene	R	
				1,3-Dichlorobenzene	R	
				1,3-Dichloropropane	R	
				1,4-Dichlorobenzene	R	
				1,4-Dioxane	R	
				2,2,4-Trimethylpentane	R	
2,2-Dichloropropane	R					
2-Butanone (Methyl ethyl ketone) (MEK)	R					

Table 4

**Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Sample ID	High Temperature While Stored at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	MW36-GW-081619	~20	0-6	2-Chlorotoluene	R	
				2-Hexanone	R	
				2-Phenylbutane (sec-Butylbenzene)	R	
				4-Chlorotoluene	R	
				4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	R	
				Acetone	R	
				Acrolein	R	
				Acrylonitrile	R	
				Benzene	R	
				Bromobenzene	R	
				Bromodichloromethane	R	
				Bromoform	R	
				Bromomethane (Methyl bromide)	R	
				Carbon disulfide	R	
				Carbon tetrachloride	116 J	µg/L
				Chlorobenzene	R	
				Chlorobromomethane	R	
				Chloroethane	R	
				Chloroform (Trichloromethane)	8.5 J	µg/L
				Chloromethane (Methyl chloride)	R	
				cis-1,2-Dichloroethene	R	
				cis-1,3-Dichloropropene	R	
				Cymene (p-Isopropyltoluene)	R	
Dibromochloromethane	R					
Dibromomethane	R					

Table 4

**Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Sample ID	High Temperature While Stored at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	MW36-GW-081619	~20	0-6	Dichlorodifluoromethane (CFC-12)	R	
				Dichlorofluoromethane	R	
				Diisopropyl ether	R	
				Ethylbenzene	R	
				Hexachlorobutadiene	R	
				Isopropyl benzene	R	
				m&p-Xylenes	R	
				Methyl tert butyl ether (MTBE)	R	
				Methylene chloride	R	
				N-Butylbenzene	R	
				N-Propylbenzene	R	
				Naphthalene	R	
				o-Xylene	R	
				Styrene	R	
				tert-Amyl methyl ether	R	
				tert-Butyl alcohol	R	
				tert-Butyl ethyl ether	R	
				tert-Butylbenzene	R	
				Tetrachloroethene	R	
				Tetrahydrofuran	R	
Toluene	<1.5 J	µg/L				
trans-1,2-Dichloroethene	R					
trans-1,3-Dichloropropene	R					
trans-1,4-Dichloro-2-butene	R					
Trichloroethene	R					

Table 4

**Qualified Sample Data Due to Insufficient Sample Preservation - Temperature
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Sample ID	High Temperature While Stored at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
VOCs	MW36-GW-081619	~20	0-6	Trichlorofluoromethane (CFC-11)	R	
				Trifluorotrchloroethane (CFC-113)	R	
				Vinyl acetate	R	
				Vinyl chloride	R	
				Xylenes (total)	R	
Dissolved Gases	MW36-GW-081619	~20	0-6	Ethane	R	
				Ethene	R	
				Methane	R	

Notes:

- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- R - Rejected
- VOCs - Volatile Organic Compounds

Table 5

**Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Copper (dissolved)	09/04/2019	4.6 J	MW27-GW-083019	1.3 J	<4.6 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

**Qualified Sample Results Due to Outlying MS/MSD Results
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 August 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW36-GW-081619	Chloride	82	83	0	80-110	20	MW36-GW-081619	14.9 J-	mg/L
		Nitrate (as N)	46	48	0	90-110	20	MW36-GW-081619	3.7 J-	mg/L
	MW35-GW-082219	Nitrate (as N)	70	72	1	90-110	20	MW35-GW-082219	1.7 J-	mg/L

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J- - Estimated concentration; implied low bias

Table 7

**Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
August 2019**

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result *	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	08/16/2019	Toluene	0.82	MW36-GW-081619	1.5 J	<1.5 J	µg/L
	08/30/2019	Toluene	0.15 J	MW27-GW-083019	0.19 J	<0.19 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

November 4, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/423-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10491643, 10491655, 10491870, 10492090, 10492109, 10492111, 10492112, 10492113, 10492282, 10492414, 10494124, 10494126, 10494127, 10494129, 10494130, 10494314, 10495159, 10495165 and 10495169
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
September – October 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during September and October 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 6).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 7).

7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.



The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with the exception of two extremely low sulfide recoveries. The associated sample detection was qualified as estimated and the associated non-detect results were rejected due to the poor analytical efficiency demonstrated (see Table 7).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the exception of one high total dissolved solids (TDS) RPD. The associated sample results were qualified as estimated due to variability (see Table 8).

9. Field QA/QC Samples

The field QA/QC consisted of nine trip blank samples, one field blank sample, one equipment blank sample and four field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, nine trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Blank Sample Analysis

To assess ambient conditions at the site and cleanliness of sample containers, one field blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of two analytes present at low concentrations. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Equipment Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, one equipment blank was submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blank were qualified as non-detect due to contamination as evidenced by the blank (see Table 9).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, four field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.



All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Asher-GW-100319	Asher Well	Water	10/03/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Lang-GW-091819	Lang Well	Water	09/18/2019	12:35	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
LashawAg-GW-100319	Lashaw Well (Agricultural)	Water	10/03/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	
Lashaw-GW-100319	Lashaw Well (Domestic)	Water	10/03/2019	10:45	X	X	X	X	X	X	X	X	X	X	X	
FD4-GW-100319	Lashaw Well (Domestic)	Water	10/03/2019	10:48	X	X	X	X	X	X	X	X	X	X	X	FD (LASHAW-GW-100319)
Marlow-GW-091819	Marlow Well	Water	09/18/2019	16:10	X	X	X	X	X	X	X	X	X	X	X	
Marlow-GW-101019	Marlow Well	Water	10/10/2019	13:05	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Marlow2-GW-101019	Out-of-Use Marlow Well (No. 2)	Water	10/10/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW1D-GW-091819	MW-1D	Water	09/18/2019	09:05	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW-1S-GW-190914	MW-1S	Water	09/14/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	
MW2D-GW-091819	MW-2D	Water	09/18/2019	09:50	X	X	X	X	X	X	X	X	X	X	X	
MW3D-GW-092019	MW-3D	Water	09/20/2019	09:10	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW4D-GW-091719	MW-4D	Water	09/17/2019	14:35	X	X	X	X	X	X	X	X	X	X	X	
MW5D-GW-091719	MW-5D	Water	09/17/2019	15:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6D-GW-091919	MW-6D	Water	09/19/2019	09:50	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW-6S-GW-190914	MW-6S	Water	09/14/2019	12:10	X	X	X	X	X	X	X	X	X	X	X	DUP
MW6U-GW-091919	MW-6U	Water	09/19/2019	08:55	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW-7S-GW-190914	MW-7S	Water	09/14/2019	15:50	X	X	X	X	X	X	X	X	X	X	X	
MW-8S-GW-190914	MW-8S	Water	09/14/2019	16:45	X	X	X	X	X	X	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW9D-GW-092019	MW-9D	Water	09/20/2019	12:35	X	X	X	X	X	X	X	X	X	X	X	
MW-9S-GW-190914	MW-9S	Water	09/14/2019	17:40	X	X	X	X	X	X	X	X	X	X	X	
MW-9S-GW-190914B	MW-9S	Water	09/14/2019	17:40	X	X	X	X	X	X	X	X	X	X	X	FD (MW-9S-GW-190914)
MW9U-GW-092019	MW-9U	Water	09/20/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	
MW9U-GW-092019B	MW-9U	Water	09/20/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	FD (MW9U-GW-092019)
MW-10S-GW-190914	MW-10S	Water	09/14/2019	10:10	X	X	X	X	X	X	X	X	X	X	X	
MW-11S-GW-190914	MW-11S	Water	09/14/2019	12:55	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW-12S-GW-190914	MW-12S	Water	09/14/2019	11:25	X	X	X	X	X	X	X	X	X	X	X	
MW13S-GW-091619	MW-13S	Water	09/16/2019	11:35	X	X	X	X	X	X	X	X	X	X	X	
MW14D-GW-091919	MW-14D	Water	09/19/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	
MW15D-GW-091719	MW-15D	Water	09/17/2019	13:25	X	X	X	X	X	X	X	X	X	X	X	
MW16D-GW-091719	MW-16D	Water	09/17/2019	11:15	X	X	X	X	X	X	X	X	X	X	X	
MW17D-GW-091919	MW-17D	Water	09/19/2019	10:30	X	X	X	X	X	X	X	X	X	X	X	DUP
MW18D-GW-091719	MW-18D	Water	09/17/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	
MW19D-GW-091719	MW-19D	Water	09/17/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	
MW20D-GW-091819	MW-20D	Water	09/18/2019	13:45	X	X	X	X	X	X	X	X	X	X	X	
MW20D-GW-091819B	MW-20D	Water	09/18/2019	13:45	X	X	X	X	X	X	X	X	X	X	X	DUP - FD (MW20D-GW-091819)
MW21D-GW-091719	MW-21D	Water	09/17/2019	09:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW24s-GW-100419	MW-24S	Water	10/04/2019	10:45	X	X	X	X	X	X	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW25s-GW-100419	MW-25S	Water	10/04/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Randall-GW-101019	Randall Well	Water	10/10/2019	14:10	X	X	X	X	X	X	X	X	X	X	X	
Reed-GW-100319	Reed Well (W30)	Water	10/03/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Silva-GW-100319	Silva Well	Water	10/03/2019	09:15	X	X	X	X	X	X	X	X	X	X	X	
Stark-GW-091819SD	Stark Well (W15)	Water	09/18/2019	10:40	X	X	X	X	X	X	X	X	X	X	X	DUP
Stark-GW-091819MS	Stark Well (W15)	Water	09/18/2019	10:40	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
Stark-GW-091819	Stark Well (W15)	Water	09/18/2019	10:40	X	X	X	X	X	X	X	X	X	X	X	
Thorson-GW-091819	Thorson Well	Water	09/18/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
W20-GW-091619	Out-of-Use Marlow Well (W20)	Water	09/16/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	
W26-GW-091619	Out-of-Use Freeman School Well (W26)	Water	09/16/2019	09:25	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
W26-GW-091619B	Out-of-Use Freeman School Well (W26)	Water	09/16/2019	09:25	X	X	X	X	X	X	X	X	X	X	X	
WS5-GW-091919	WS-5	Water	09/19/2019	10:55	X	X	X	X	X	X	X	X	X	X	X	
EB-01-091619	--	Water	09/16/2019	09:30	X	X	X	X	X	X	X	X	X	X	X	Equipment Blank
MW9U-FB-092019	--	Water	09/20/2019	11:30											X	Field Blank
TB-01-190914	--	Water	09/14/2019	--											X	Trip Blank
TB-02-190916	--	Water	09/16/2019	--											X	Trip Blank
TB-03-091719	--	Water	09/17/2019	--											X	Trip Blank
TB04-091819	--	Water	09/18/2019	--											X	Trip Blank
TB05-091919	--	Water	09/19/2019	--											X	Trip Blank

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments			
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs				
TB06-092019	--	Water	09/20/2019	--												X	Trip Blank	
Trip Blank	--	Water	10/03/2019	--													X	Trip Blank
TB-100419	--	Water	10/04/2019	--													X	Trip Blank
Trip Blank	--	Water	10/10/2019	--													X	Trip Blank

Notes:

- DUP - Laboratory Duplicate
 FD - Field Duplicate sample of sample in parenthesis
 MS - Matrix Spike
 MS/MSD - Matrix Spike/Matrix Spike Duplicate
 VOCs - Volatile Organic Compounds
 COD - Chemical Oxygen Demand
 TDS - Total Dissolved Solids
 TOC - Total Organic Carbon
 "--" - Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾ SM 4500 S2 F ⁽³⁾	Water Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Marlow Well
	Sample Name:	Asher-GW-100319	Lang-GW-091819	LashawAg-GW-100319	Lashaw-GW-100319	FD4-GW-100319	Marlow-GW-091819
	Sample Date:	10/03/2019	09/18/2019	10/03/2019	10/03/2019	10/03/2019 Duplicate	09/18/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	29.4 J	<54.6	<54.6	<54.6	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<1.2	<3.2	<3.2	<3.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Marlow Well
Sample Name:	Asher-GW-100319	Lang-GW-091819	LashawAg-GW-100319	Lashaw-GW-100319	FD4-GW-100319	Marlow-GW-091819
Sample Date:	10/03/2019	09/18/2019	10/03/2019	10/03/2019	10/03/2019 Duplicate	09/18/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.078	<0.19	<0.19	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	4.3	0.29 J	0.51
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.16	<0.48	<0.48	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Marlow Well
	Sample Name:	Asher-GW-100319	Lang-GW-091819	LashawAg-GW-100319	Lashaw-GW-100319	FD4-GW-100319	Marlow-GW-091819
	Sample Date:	10/03/2019	09/18/2019	10/03/2019	10/03/2019	10/03/2019	09/18/2019
						Duplicate	
Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Amyl methyl ether	µg/L	<0.11 J-	<0.11	<0.11 J-	<0.11 J-	<0.11 J-	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J-	<0.18	<0.18 J-	<0.18 J-	<0.18 J-	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<3.0	<4.07	<3.0	<3.0	<3.0	<4.07
Ethene	µg/L	<2.9	<4.26	<2.9	<2.9	<2.9	<4.26
Methane	µg/L	<4.9	<2.91	<4.9	<4.9	<4.9	<2.91
Metals							
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	71.1	19.5	33.7	9.6 J	9.2 J	16.2
Beryllium (dissolved)	µg/L	0.15 J	<0.12	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	0.85 J	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.62 J	0.63 J	<0.83 J	<0.61 J	<0.50	1.0 J
Copper (dissolved)	µg/L	92.8	8.5 J	2.2 J	3.7 J	3.4 J	19.7
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Asher Well	Lang Well	Lashaw Well (Agricultural)	Lashaw Well (Domestic)	Lashaw Well (Domestic)	Marlow Well
Sample Name:	Asher-GW-100319	Lang-GW-091819	LashawAg-GW-100319	Lashaw-GW-100319	FD4-GW-100319	Marlow-GW-091819
Sample Date:	10/03/2019	09/18/2019	10/03/2019	10/03/2019	10/03/2019 Duplicate	09/18/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	<1.1	2.1 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	8.7 J	<5.5	<5.5	6.8 J	<5.5
Vanadium (dissolved)	µg/L	10.4 J	6.2 J	3.1 J	11.8 J	0.49 J
Zinc (dissolved)	µg/L	45.3	27.0	316	185	226
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	223	201	185	148	150
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	6.3	1.7 J-	3.0	1.8	1.8
Nitrate (as N)	mg/L	7.2	0.45 J-	0.10	2.7	2.8
Nitrite/Nitrate	mg/L	7.2	0.66	0.11	2.9	2.8
Sulfate	mg/L	22.3 J-	1.7 J-	6.1 J-	6.8 J-	6.9 J-
Sulfide	mg/L	R	<0.0054	R	R	R
Total dissolved solids (TDS)	mg/L	345	253	234	215	212
Total organic carbon (TOC)	mg/L	1.0 J	<0.39	0.97 J	0.57 J	0.58 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
	Sample Name:	Marlow-GW-101019	Marlow2-GW-101019	MW1D-GW-091819	MW-1S-GW-190914	MW2D-GW-091819
	Sample Date:	10/10/2019	10/10/2019	09/18/2019	09/14/2019	09/18/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
	Sample Name:	Marlow-GW-101019	Marlow2-GW-101019	MW1D-GW-091819	MW-1S-GW-190914	MW2D-GW-091819
	Sample Date:	10/10/2019	10/10/2019	09/18/2019	09/14/2019	09/18/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	120	9.6	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	8.2	1.4	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
Sample Name:	Marlow-GW-101019	Marlow2-GW-101019	MW1D-GW-091819	MW-1S-GW-190914	MW2D-GW-091819
Sample Date:	10/10/2019	10/10/2019	09/18/2019	09/14/2019	09/18/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	0.77	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<3.0	<3.0	<4.07	<4.07
Ethene	µg/L	<2.9	<2.9	<4.26	<4.26
Methane	µg/L	<4.9	<4.9	<2.91	61.2
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	30.4	15.2	76.0	80.8
Beryllium (dissolved)	µg/L	0.21 J	0.16 J	<0.12	<0.12
Cadmium (dissolved)	µg/L	0.51 J	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.87 J	<0.96 J	0.69 J	2.0 J
Copper (dissolved)	µg/L	380	637	1.2 J	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	Marlow Well	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
	Sample Name:	Marlow-GW-101019	Marlow2-GW-101019	MW1D-GW-091819	MW-1S-GW-190914	MW2D-GW-091819
	Sample Date:	10/10/2019	10/10/2019	09/18/2019	09/14/2019	09/18/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	5.2 J	<3.8	7.0 J	<3.8	9.8 J
Nickel (dissolved)	µg/L	1.4 J	1.8 J	<1.1	<1.1	1.2 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	5.6 J	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	8.6 J	1.9 J	1.3 J	8.8 J	1.4 J
Zinc (dissolved)	µg/L	1030	887	9.3 J	14.1 J	7.9 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	159	276	196	149	153
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	36.0 J
Chloride	mg/L	20.1 J-	1.5 J-	1.8 J-	7.8 J-	1.5 J-
Nitrate (as N)	mg/L	4.2	0.34	0.14 J-	0.21 J	0.044 J
Nitrite/Nitrate	mg/L	4.3	0.33	0.18	0.26	<0.018
Sulfate	mg/L	16.1	2.1	3.7 J-	34.5	3.8 J-
Sulfide	mg/L	<0.0054	<0.0054	<2.0	R	<2.0
Total dissolved solids (TDS)	mg/L	276	277	246	545 J	206
Total organic carbon (TOC)	mg/L	0.63 J	0.60 J	68.5	3.1	3.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
	Sample Name:	MW3D-GW-092019	MW4D-GW-091719	MW5D-GW-091719	MW6D-GW-091919	MW-6S-GW-190914
	Sample Date:	09/20/2019	09/17/2019	09/17/2019	09/19/2019	09/14/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
Sample Name:	MW3D-GW-092019	MW4D-GW-091719	MW5D-GW-091719	MW6D-GW-091919	MW-6S-GW-190914
Sample Date:	09/20/2019	09/17/2019	09/17/2019	09/19/2019	09/14/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	2.8	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	1.0	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
Sample Name:	MW3D-GW-092019	MW4D-GW-091719	MW5D-GW-091719	MW6D-GW-091919	MW-6S-GW-190914
Sample Date:	09/20/2019	09/17/2019	09/17/2019	09/19/2019	09/14/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	60.4	<2.91	<2.91
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	41.6	83.8	95.0	7.9 J
Beryllium (dissolved)	µg/L	0.16 J	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	0.79 J	1.5 J	<0.66	<0.66
Cobalt (dissolved)	µg/L	<0.50	3.3 J	0.72 J	0.88 J
Copper (dissolved)	µg/L	<1.2	2.8 J	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S
	Sample Name:	MW3D-GW-092019	MW4D-GW-091719	MW5D-GW-091719	MW6D-GW-091919	MW-6S-GW-190914
	Sample Date:	09/20/2019	09/17/2019	09/17/2019	09/19/2019	09/14/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	3.3 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	1.9 J	7.0 J	8.3 J	6.1 J	5.5 J
Zinc (dissolved)	µg/L	6.3 J	11.2 J	<6.3	<6.3	11.4 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	143	129	212	171	231
Chemical oxygen demand (COD)	mg/L	<17.0	53.3	<17.0	21.8 J	<17.0
Chloride	mg/L	1.3 J-	6.6 J-	1.0 J	1.9 J-	1.5 J-
Nitrate (as N)	mg/L	0.14 J-	0.64 J-	0.17 J-	0.043 J	0.30 J
Nitrite/Nitrate	mg/L	0.17	0.58	0.22	<0.018	0.32
Sulfate	mg/L	3.0 J-	4.6	2.8	5.1 J-	1.9
Sulfide	mg/L	<0.0054	0.051	<0.0054	<0.0054	R
Total dissolved solids (TDS)	mg/L	203	247	279	218	279 J
Total organic carbon (TOC)	mg/L	0.50 J	7.3	0.47 J	0.56 J	0.79 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-091919	MW-7S-GW-190914	MW-8S-GW-190914	MW9D-GW-092019	MW-9S-GW-190914	MW-9S-GW-190914B
Sample Date:	09/19/2019	09/14/2019	09/14/2019	09/20/2019	09/14/2019	09/14/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-091919	MW-7S-GW-190914	MW-8S-GW-190914	MW9D-GW-092019	MW-9S-GW-190914	MW-9S-GW-190914B
Sample Date:	09/19/2019	09/14/2019	09/14/2019	09/20/2019	09/14/2019	09/14/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	0.97 J 0.88 J
Carbon tetrachloride	µg/L	82.3	2.1	193	74.4	347 331
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	2.7	<0.45	43.4	4.0	54.5 55.1
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-091919	MW-7S-GW-190914	MW-8S-GW-190914	MW9D-GW-092019	MW-9S-GW-190914	MW-9S-GW-190914B
Sample Date:	09/19/2019	09/14/2019	09/14/2019	09/20/2019	09/14/2019	09/14/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	0.58	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	26.3	66.3	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	6.6 J	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	46.6	76.0	31.3	29.1	69.9
Beryllium (dissolved)	µg/L	<0.17 J	<0.12	0.14 J	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	0.47 J	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	1.6 J	1.5 J	0.57 J	1.1 J	2.1 J
Copper (dissolved)	µg/L	<1.2	<1.2	1.3 J	3.1 J	<1.2
Lead (dissolved)	µg/L	<2.0	2.5 J	<2.0	<2.0	<2.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-091919	MW-7S-GW-190914	MW-8S-GW-190914	MW9D-GW-092019	MW-9S-GW-190914	MW-9S-GW-190914B
Sample Date:	09/19/2019	09/14/2019	09/14/2019	09/20/2019	09/14/2019	09/14/2019 Duplicate
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	0.18 J	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	1.1 J	2.8 J	<1.1	1.4 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	5.8 J	5.5 J
Vanadium (dissolved)	µg/L	6.8 J	2.5 J	1.4 J	8.2 J	2.3 J
Zinc (dissolved)	µg/L	<6.3	69.0	9.1 J	8.3 J	8.5 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	260	102	128	178	83.0
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	25.1 J
Chloride	mg/L	4.6 J-	15.8 J-	2.5 J-	12.9 J-	67.6 J-
Nitrate (as N)	mg/L	1.8 J-	6.6 J	7.9 J	2.8 J-	12.5 J
Nitrite/Nitrate	mg/L	2.2	7.7	9.1	3.5	15.4
Sulfate	mg/L	7.1 J-	23.4	19.3	31.3 J-	72.9
Sulfide	mg/L	<0.0054	R	R	<0.0054	0.027 J-
Total dissolved solids (TDS)	mg/L	342	261 J	301 J	310	453 J
Total organic carbon (TOC)	mg/L	1.1 J	1.9	1.0 J	1.3	2.1

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-092019	MW9U-GW-092019B	MW-10S-GW-190914	MW-11S-GW-190914	MW-12S-GW-190914	MW13S-GW-091619
Sample Date:	09/20/2019	09/20/2019	09/14/2019	09/14/2019	09/14/2019	09/16/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-092019	MW9U-GW-092019B	MW-10S-GW-190914	MW-11S-GW-190914	MW-12S-GW-190914	MW13S-GW-091619
Sample Date:	09/20/2019	09/20/2019	09/14/2019	09/14/2019	09/14/2019	09/16/2019
Parameters	Duplicate					
Unit						
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	1.6	1.4	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	514	528	0.31 J	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	14.4	14.9	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-092019	MW9U-GW-092019B	MW-10S-GW-190914	MW-11S-GW-190914	MW-12S-GW-190914	MW13S-GW-091619
Sample Date:	09/20/2019	09/20/2019	09/14/2019	09/14/2019	09/14/2019	09/16/2019
Parameters	Duplicate					
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	21.5	22.0	36.7	47.5	183
Beryllium (dissolved)	µg/L	0.15 J	0.12 J	<0.12	<0.12	0.14 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	1.0 J
Cobalt (dissolved)	µg/L	0.70 J	1.7 J	0.79 J	0.79 J	1.3 J
Copper (dissolved)	µg/L	<1.2	<1.2	4.0 J	<1.2	1.3 J
Lead (dissolved)	µg/L	2.2 J	2.6 J	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-9U	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S
Sample Name:	MW9U-GW-092019	MW9U-GW-092019B	MW-10S-GW-190914	MW-11S-GW-190914	MW-12S-GW-190914	MW13S-GW-091619
Sample Date:	09/20/2019	09/20/2019	09/14/2019	09/14/2019	09/14/2019	09/16/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	2.9 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	5.6 J	6.4 J	<5.5
Vanadium (dissolved)	µg/L	7.7 J	7.7 J	4.0 J	7.6 J	11.2 J
Zinc (dissolved)	µg/L	<6.3	6.8 J	9.8 J	12.0 J	<11.1 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	161	158	306	220	158
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	12.0 J-	11.9 J-	0.71 J	0.96 J	<1.1 J
Nitrate (as N)	mg/L	5.5 J-	5.5 J-	0.18 J	0.093 J	0.34 J-
Nitrite/Nitrate	mg/L	7.0	7.0	0.22	0.065 J	0.42
Sulfate	mg/L	33.6 J-	33.4 J-	1.4	2.4	4.2
Sulfide	mg/L	<0.0054	<0.0054	R	R	0.011 J
Total dissolved solids (TDS)	mg/L	460	335	355 J	278 J	230
Total organic carbon (TOC)	mg/L	1.4	1.3 J	0.49 J	<0.39	0.50 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-091919	MW15D-GW-091719	MW16D-GW-091719	MW17D-GW-091919	MW18D-GW-091719	MW19D-GW-091719
Sample Date:	09/19/2019	09/17/2019	09/17/2019	09/19/2019	09/17/2019	09/17/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-091919	MW15D-GW-091719	MW16D-GW-091719	MW17D-GW-091919	MW18D-GW-091719	MW19D-GW-091719
Sample Date:	09/19/2019	09/17/2019	09/17/2019	09/19/2019	09/17/2019	09/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	<0.078	1.4
Carbon tetrachloride	µg/L	<0.19	7.5	<0.19	<0.19	455
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	24.2
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-091919	MW15D-GW-091719	MW16D-GW-091719	MW17D-GW-091919	MW18D-GW-091719	MW19D-GW-091719
Sample Date:	09/19/2019	09/17/2019	09/17/2019	09/19/2019	09/17/2019	09/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	10.8 J	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	21.7	11.4	67.1	61.4	54.1
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.18 J	<0.12	<0.17 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	0.83 J	<0.66	<0.66
Cobalt (dissolved)	µg/L	0.89 J	0.94 J	1.6 J	1.4 J	0.86 J
Copper (dissolved)	µg/L	<1.2	1.5 J	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	2.5 J	<2.0	<2.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-14D	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D
Sample Name:	MW14D-GW-091919	MW15D-GW-091719	MW16D-GW-091719	MW17D-GW-091919	MW18D-GW-091719	MW19D-GW-091719
Sample Date:	09/19/2019	09/17/2019	09/17/2019	09/19/2019	09/17/2019	09/17/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	5.5 J	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	1.3 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	6.6 J	10.8 J	10.5 J	3.3 J	<0.43
Zinc (dissolved)	µg/L	<6.3	18.7 J	<6.3	9.8 J	6.8 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	142	175	221	167	155
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	29.1 J	<17.0
Chloride	mg/L	0.94 J	2.9 J-	7.6 J-	19.2 J-	2.1 J-
Nitrate (as N)	mg/L	0.083 J	2.0 J-	6.2 J-	0.057 J	<0.012 J-
Nitrite/Nitrate	mg/L	0.098 J	2.4	7.2	0.035 J	<0.018
Sulfate	mg/L	0.69 J	6.0	26.5	53.8 J-	6.5
Sulfide	mg/L	<0.0054	<0.0054	<0.0054	0.0058 J	<0.0054
Total dissolved solids (TDS)	mg/L	189	242	369	323	203
Total organic carbon (TOC)	mg/L	1.1 J	0.48 J	<0.79	4.7	0.42 J

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-20D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW20D-GW-091819	MW20D-GW-091819B	MW21D-GW-091719	MW24s-GW-100419	MW25s-GW-100419	Randall-GW-101019
Sample Date:	09/18/2019	09/18/2019	09/17/2019	10/04/2019	10/04/2019	10/10/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<3.2	<3.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-20D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW20D-GW-091819	MW20D-GW-091819B	MW21D-GW-091719	MW24s-GW-100419	MW25s-GW-100419	Randall-GW-101019
Sample Date:	09/18/2019	09/18/2019	09/17/2019	10/04/2019	10/04/2019	10/10/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078	1.4	<0.19
Carbon tetrachloride	µg/L	25.5	27.7	<0.19	107	127
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	54.1	47.2
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-20D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW20D-GW-091819	MW20D-GW-091819B	MW21D-GW-091719	MW24s-GW-100419	MW25s-GW-100419	Randall-GW-101019
Sample Date:	09/18/2019	09/18/2019	09/17/2019	10/04/2019	10/04/2019	10/10/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11 J-
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<3.0	<3.0
Ethene	µg/L	<4.26	<4.26	<4.26	<2.9	<2.9
Methane	µg/L	<2.91	<2.91	<2.91	<4.9	<4.9
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	18.0	18.6	80.5	49.0	34.1
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	0.17 J	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	0.84 J	<0.66
Cobalt (dissolved)	µg/L	1.0 J	1.2 J	1.1 J	8.3 J	<0.50
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	2.1 J	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	MW-20D	MW-20D	MW-21D	MW-24S	MW-25S	Randall Well
Sample Name:	MW20D-GW-091819	MW20D-GW-091819B	MW21D-GW-091719	MW24s-GW-100419	MW25s-GW-100419	Randall-GW-101019
Sample Date:	09/18/2019	09/18/2019	09/17/2019	10/04/2019	10/04/2019	10/10/2019
	Duplicate					
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	<1.1	1.3 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	6.4 J	<5.5	6.9 J	<5.5	6.5 J
Vanadium (dissolved)	µg/L	5.9 J	5.8 J	0.52 J	9.2 J	1.1 J
Zinc (dissolved)	µg/L	24.3	7.0 J	<6.3	12.7 J	7.4 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	274	269	200	118	88.1
Chemical oxygen demand (COD)	mg/L	<17.0	27.0 J	<17.0	<17.0	<17.0
Chloride	mg/L	5.6 J-	5.6 J-	2.8 J-	15.9 J-	33.5 J-
Nitrate (as N)	mg/L	1.1 J-	1.1 J-	<0.012 J-	9.6 J	9.2 J
Nitrite/Nitrate	mg/L	1.5	1.4	<0.018	10.7	10.5
Sulfate	mg/L	7.3 J-	7.2 J-	8.7	30.8	60.4
Sulfide	mg/L	<2.0	<2.0	0.0078 J	<0.14	<0.0054
Total dissolved solids (TDS)	mg/L	347	343	260	264	328
Total organic carbon (TOC)	mg/L	0.99 J	0.96 J	0.51 J	1.5	1.5

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID: Sample Name: Sample Date:	Reed Well (W30) Reed-GW-100319 10/03/2019	Silva Well Silva-GW-100319 10/03/2019	Stark Well (W15) Stark-GW-091819 09/18/2019	Stark Well (W15) Stark-GW-091819MS 09/18/2019	Stark Well (W15) Stark-GW-091819SD 09/18/2019	Thorson Well Thorson-GW-091819 09/18/2019
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2 J-	<3.2	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Stark Well (W15)	Stark Well (W15)	Thorson Well
Sample Name:	Reed-GW-100319	Silva-GW-100319	Stark-GW-091819	Stark-GW-091819MS	Stark-GW-091819SD	Thorson-GW-091819
Sample Date:	10/03/2019	10/03/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

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Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Stark Well (W15)	Stark Well (W15)	Thorson Well
Sample Name:	Reed-GW-100319	Silva-GW-100319	Stark-GW-091819	Stark-GW-091819MS	Stark-GW-091819SD	Thorson-GW-091819
Sample Date:	10/03/2019	10/03/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11 J-	<0.11 J-	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18 J-	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<3.0	<3.0	<4.07	<4.07	<4.07
Ethene	µg/L	<2.9	<2.9	<4.26	<4.26	<4.26
Methane	µg/L	<4.9	<4.9	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	46.2	28.6	32.1	31.2	53.8
Beryllium (dissolved)	µg/L	<0.12	0.20 J	<0.17 J	<0.12	<0.17 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	0.73 J	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	<1.0 J	<0.71 J	1.7 J	1.8 J	<0.50
Copper (dissolved)	µg/L	2.8 J	15.6	113	119	150
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Reed Well (W30)	Silva Well	Stark Well (W15)	Stark Well (W15)	Stark Well (W15)	Thorson Well
Sample Name:	Reed-GW-100319	Silva-GW-100319	Stark-GW-091819	Stark-GW-091819MS	Stark-GW-091819SD	Thorson-GW-091819
Sample Date:	10/03/2019	10/03/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	10.8 J	10.7 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	7.3 J	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	22.9	9.0 J	4.0 J	4.0 J	4.2 J
Zinc (dissolved)	µg/L	25.1	24.1	21.4	21.7	24.7
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	143	174	142	142	146
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	37.4 J	<17.0	<17.0
Chloride	mg/L	1.4	2.4	1.3 J-	1.3 J-	1.3 J-
Nitrate (as N)	mg/L	0.34	2.4	1.3 J-	1.1 J-	<0.012 J-
Nitrite/Nitrate	mg/L	0.37	2.5	1.4	1.4	<0.018
Sulfate	mg/L	7.7 J-	11.1 J-	14.5 J-	14.4 J-	14.4 J-
Sulfide	mg/L	<0.0054	R	<0.0054	<2.0	<2.0
Total dissolved solids (TDS)	mg/L	193	251	224	235	233
Total organic carbon (TOC)	mg/L	0.40 J	1.1	0.56 J	0.89 J	0.47 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

	Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) W20-GW-091619 09/16/2019	Out-of-Use Freeman School Well (W26) W26-GW-091619 09/16/2019	Out-of-Use Freeman School Well (W26) W26-GW-091619B 09/16/2019	WS-5 WS5-GW-091919 09/19/2019
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<1.2	<1.2	<1.2	<1.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W20-GW-091619	W26-GW-091619	W26-GW-091619B	WS5-GW-091919
Sample Date:	09/16/2019	09/16/2019	09/16/2019	09/19/2019
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Acrylonitrile	µg/L	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	<0.19	23.4	24.3
Chlorobenzene	µg/L	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	1.9	2.0
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID:	Out-of-Use Marlow Well (W20)	Out-of-Use Freeman School Well (W26)	Out-of-Use Freeman School Well (W26)	WS-5
Sample Name:	W20-GW-091619	W26-GW-091619	W26-GW-091619B	WS5-GW-091919
Sample Date:	09/16/2019	09/16/2019	09/16/2019	09/19/2019
Parameters	Unit			
Volatile Organic Compounds (Continued)				
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31
Dissolved Gases				
Ethane	µg/L	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26
Methane	µg/L	4320	<2.91	<2.91
Metals				
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	21.2	6.6 J	6.4 J
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.17 J
Cadmium (dissolved)	µg/L	<0.28	0.38 J	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	0.51 J	0.89 J	0.76 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Location ID: Sample Name: Sample Date:	Out-of-Use Marlow Well (W20) W20-GW-091619 09/16/2019	Out-of-Use Freeman School Well (W26) W26-GW-091619 09/16/2019	Out-of-Use Freeman School Well (W26) W26-GW-091619B 09/16/2019	WS-5 WS5-GW-091919 09/19/2019
Parameters	Unit			
Metals (Continued)				
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	41.3
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	7.9 J	<5.5
Vanadium (dissolved)	µg/L	<0.43	6.7 J	20.9
Zinc (dissolved)	µg/L	20.2	94.6	45.9
General Chemistry				
Alkalinity, total (as CaCO ₃)	mg/L	56.4	151	171
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0
Chloride	mg/L	1.7 J-	2.9 J-	2.7 J-
Nitrate (as N)	mg/L	<0.012 J-	2.2 J-	1.0 J-
Nitrite/Nitrate	mg/L	<0.018	2.4	1.4
Sulfate	mg/L	<0.28	5.2	5.3 J-
Sulfide	mg/L	<0.0054	<0.0054	<0.0054
Total dissolved solids (TDS)	mg/L	70.0	272	224
Total organic carbon (TOC)	mg/L	2.9	0.65 J	0.64 J

Notes:

J - Estimated concentration

<() J - Not detected; associated reporting limit is estimated

<() J- - Not detected; associated reporting limit is estimated; implied

J- - Estimated concentration; implied low bias

R - Rejected

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW-10S-GW-190914	48 hours	>48 hours	Nitrate (as N)	0.18 J	mg/L
	MW-12S-GW-190914	48 hours	>48 hours	Nitrate (as N)	7.1 J	mg/L
	MW-6S-GW-190914	48 hours	>48 hours	Nitrate (as N)	0.30 J	mg/L
	MW-11S-GW-190914	48 hours	>48 hours	Nitrate (as N)	0.093 J	mg/L
	MW-1S-GW-190914	48 hours	>48 hours	Nitrate (as N)	0.21 J	mg/L
	MW-7S-GW-190914	48 hours	>48 hours	Nitrate (as N)	6.6 J	mg/L
	MW-8S-GW-190914	48 hours	>48 hours	Nitrate (as N)	7.9 J	mg/L
	MW-9S-GW-190914	48 hours	>96 hours	Nitrate (as N)	12.5 J	mg/L
	MW-9S-GW-190914B	48 hours	>96 hours	Nitrate (as N)	12.5 J	mg/L
	MW25s-GW-100419	48 hours	>96 hours	Nitrate (as N)	9.2 J	mg/L
MW24s-GW-100419	48 hours	>96 hours	Nitrate (as N)	9.6 J	mg/L	

Notes:

J - Estimated concentration

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Beryllium (dissolved)	10/01/2019	0.17 J	MW16D-GW-091719	0.18 J	<0.18 J	µg/L
				MW18D-GW-091719	0.14 J	<0.17 J	µg/L
				Stark-GW-091819SD	0.17 J	<0.17 J	µg/L
				Stark-GW-091819	0.14 J	<0.17 J	µg/L
				MW6U-GW-091919	0.12 J	<0.17 J	µg/L
				WS5-GW-091919	0.17 J	<0.17 J	µg/L
	Cobalt (dissolved)	10/17/2019	0.52 J	Asher-GW-100319	0.62 J	<0.62 J	µg/L
				Lashaw-GW-100319	0.61 J	<0.61 J	µg/L
				LashawAg-GW-100319	0.83 J	<0.83 J	µg/L
				Silva-GW-100319	0.71 J	<0.71 J	µg/L
				Reed-GW-100319	1.0 J	<1.0 J	µg/L
				Marlow-GW-101019	0.87 J	<0.87 J	µg/L
				Marlow2-GW-101019	0.96 J	<0.96 J	µg/L
				Randall-GW-101019	0.62 J	<0.62 J	µg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	Control Limits	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	tert-Butyl ethyl ether	10/09/2019	72	75-125	FD4-GW-100319	<0.18 J-	µg/L
					Asher-GW-100319	<0.18 J-	µg/L
					LashawAg-GW-100319	<0.18 J-	µg/L
					Lashaw-GW-100319	<0.18 J-	µg/L
					Silva-GW-100319	<0.18 J-	µg/L
	tert-Amyl methyl ether	10/09/2019	65	75-125	FD4-GW-100319	<0.11 J-	µg/L
					Asher-GW-100319	<0.11 J-	µg/L
					LashawAg-GW-100319	<0.11 J-	µg/L
					Lashaw-GW-100319	<0.11 J-	µg/L
					Silva-GW-100319	<0.11 J-	µg/L
	Acrolein	10/15/2019	54	60-141	Reed-GW-100319	<3.2 J-	µg/L
					MW25s-GW-100419	<3.2 J-	µg/L
	tert-Amyl methyl ether	10/15/2019	65	75-125	Reed-GW-100319	<0.11 J-	µg/L
					MW25s-GW-100419	<0.11 J-	µg/L

Notes:

LCS - Laboratory Control Sample

<() J- - Not detected; associated reporting limit is estimated; implied low bias

VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW-11S-GW-190914	Sulfide	23	--	--	70-125	--	MW-10S-GW-190914	R	
								MW-12S-GW-190914	R	
								MW-6S-GW-190914	R	
								MW-11S-GW-190914	R	
								MW-1S-GW-190914	R	
								MW-7S-GW-190914	R	
								MW-8S-GW-190914	R	
								MW-9S-GW-190914	0.027 J-	
	MW-9S-GW-190914B	R								
	MW21D-GW-091719	Sulfide	4	--	--	70-125	--	FD4-GW-100319	R	
								Asher-GW-100319	R	
								Lashaw-GW-100319	R	
								LashawAg-GW-100319	R	
								Silva-GW-100319	R	
	MW-11S-GW-190914	Chloride	87	87	0	90-110	20	W26-GW-091619	2.9 J-	mg/L
W26-GW-091619B								2.9 J-	mg/L	
MW13S-GW-091619								<1.1 J	mg/L	
W20-GW-091619								1.7 J-	mg/L	
MW-10S-GW-190914								0.71 J	mg/L	
MW-12S-GW-190914								40.6 J-	mg/L	
MW-6S-GW-190914								1.5 J-	mg/L	
MW-11S-GW-190914								0.96 J	mg/L	
MW-1S-GW-190914								7.8 J-	mg/L	
MW-7S-GW-190914								15.8 J-	mg/L	

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery	(percent)	% Recovery	RPD				
General Chemistry	MW-11S-GW-190914	Chloride	87	87	0	90-110	20	MW-8S-GW-190914	2.5 J-	mg/L	
								MW-9S-GW-190914	67.6 J-	mg/L	
								MW-9S-GW-190914B	67.4 J-	mg/L	
		Nitrate (as N)	83	84	1	90-110	20	W26-GW-091619	2.2 J-	mg/L	
								W26-GW-091619B	2.2 J-	mg/L	
								MW13S-GW-091619	0.34 J-	mg/L	
								W20-GW-091619	<0.012 J-	mg/L	
								MW-10S-GW-190914	0.18 J	mg/L	
								MW-12S-GW-190914	7.1 J	mg/L	
								MW-6S-GW-190914	0.30 J	mg/L	
								MW-11S-GW-190914	0.093 J	mg/L	
								MW-1S-GW-190914	0.21 J	mg/L	
								MW-7S-GW-190914	6.6 J	mg/L	
								MW-8S-GW-190914	7.9 J	mg/L	
								MW-9S-GW-190914	12.5 J	mg/L	
								MW-9S-GW-190914B	12.5 J	mg/L	
	MW5D-GW-091719							Chloride	88	88	0
			MW19D-GW-091719	8.6 J-	mg/L						
			MW16D-GW-091719	7.6 J-	mg/L						
			MW18D-GW-091719	2.1 J-	mg/L						
			MW15D-GW-091719	2.9 J-	mg/L						
			MW4D-GW-091719	6.6 J-	mg/L						
			MW5D-GW-091719	1.0 J	mg/L						

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW5D-GW-091719	Nitrate (as N)	85	86	0	90-110	20	MW21D-GW-091719	<0.012 J-	mg/L
								MW19D-GW-091719	4.1 J-	mg/L
								MW16D-GW-091719	6.2 J-	mg/L
								MW18D-GW-091719	<0.012 J-	mg/L
								MW15D-GW-091719	2.0 J-	mg/L
								MW4D-GW-091719	0.64 J-	mg/L
								MW5D-GW-091719	0.17 J-	mg/L
	Stark-GW-091819MS	Chloride	89	89	0	90-110	20	MW1D-GW-091819	1.8 J-	mg/L
								MW2D-GW-091819	1.5 J-	mg/L
								Stark-GW-091819SD	1.3 J-	mg/L
								Stark-GW-091819MS	1.3 J-	mg/L
								MW20D-GW-091819	5.6 J-	mg/L
								MW20D-GW-091819B	5.6 J-	mg/L
								Lang-GW-091819	1.7 J-	mg/L
Stark-GW-091819	1.3 J-	mg/L								
Marlow-GW-091819	17.2 J-	mg/L								
Thorson-GW-091819	1.3 J-	mg/L								
		Nitrate (as N)	77	77	0	90-110	20	MW1D-GW-091819	0.14 J-	mg/L
								MW2D-GW-091819	0.044 J	mg/L
								Stark-GW-091819SD	1.1 J-	mg/L
								Stark-GW-091819MS	1.1 J-	mg/L
								MW20D-GW-091819	1.1 J-	mg/L
								MW20D-GW-091819B	1.1 J-	mg/L
Lang-GW-091819	0.45 J-	mg/L								

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	Stark-GW-091819MS	Nitrate (as N)	77	77	0	90-110	20	Stark-GW-091819	1.3 J-	mg/L
			Marlow-GW-091819	3.0 J-	mg/L					
			Thorson-GW-091819	<0.012 J-	mg/L					
		Sulfate	76	77	1	90-110	20	MW1D-GW-091819	3.7 J-	mg/L
			MW2D-GW-091819	3.8 J-	mg/L					
			Stark-GW-091819SD	14.4 J-	mg/L					
			Stark-GW-091819MS	14.4 J-	mg/L					
			MW20D-GW-091819	7.3 J-	mg/L					
			MW20D-GW-091819B	7.2 J-	mg/L					
	MW6U-GW-091919	Chloride	85	85	0	90-110	20	Lang-GW-091819	1.7 J-	mg/L
			Stark-GW-091819	14.5 J-	mg/L					
			Marlow-GW-091819	13.1 J-	mg/L					
			Thorson-GW-091819	2.6 J-	mg/L					
			MW6U-GW-091919	4.6 J-	mg/L					
			MW6D-GW-091919	1.9 J-	mg/L					
MW6U-GW-091919	Nitrate (as N)	63	63	0	90-110	20	MW17D-GW-091919	19.2 J-	mg/L	
		WS5-GW-091919	2.7 J-	mg/L						
		MW14D-GW-091919	0.94 J	mg/L						
		MW6U-GW-091919	1.8 J-	mg/L						
		MW6D-GW-091919	0.043 J	mg/L						
		MW17D-GW-091919	0.057 J	mg/L						
		WS5-GW-091919	1.0 J-	mg/L						
		MW14D-GW-091919	0.083 J	mg/L						

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW6U-GW-091919	Sulfate	86	85	0	90-110	20	MW6U-GW-091919	7.1 J-	mg/L
								MW6D-GW-091919	5.1 J-	mg/L
								MW17D-GW-091919	53.8 J-	mg/L
								WS5-GW-091919	5.3 J-	mg/L
								MW14D-GW-091919	0.69 J	mg/L
	MW3D-GW-092019	Chloride	86	87	0	90-110	20	MW3D-GW-092019	1.3 J-	mg/L
								MW9U-GW-092019	12.0 J-	mg/L
								MW9U-GW-092019B	11.9 J-	mg/L
								MW9D-GW-092019	12.9 J-	mg/L
		Nitrate (as N)	80	80	0	90-110	20	MW3D-GW-092019	0.14 J-	mg/L
								MW9U-GW-092019	5.5 J-	mg/L
								MW9U-GW-092019B	5.5 J-	mg/L
								MW9D-GW-092019	2.8 J-	mg/L
	MW3D-GW-092019	Sulfate	88	88	0	90-110	20	MW3D-GW-092019	3.0 J-	mg/L
								MW9U-GW-092019	33.6 J-	mg/L
MW9U-GW-092019B								33.4 J-	mg/L	
MW9D-GW-092019								31.3 J-	mg/L	
Asher-GW-100319	Sulfate	84	84	0	90-110	20	FD4-GW-100319	6.9 J-	mg/L	
Asher-GW-100319							22.3 J-	mg/L		
Lashaw-GW-100319							6.8 J-	mg/L		
LashawAg-GW-100319							6.1 J-	mg/L		
Silva-GW-100319							11.1 J-	mg/L		

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	Asher-GW-100319	Sulfate	84	84	0	90-110	20	Reed-GW-100319	7.7 J-	mg/L
	MW25s-GW-100419	Chloride	57	57	0	90-110	20	MW25s-GW-100419	33.5 J-	mg/L
								MW24s-GW-100419	15.9 J-	mg/L
Marlow-GW-101019	Chloride	79	80	1	90-110	20	Marlow-GW-101019	20.1 J-	mg/L	
							Marlow2-GW-101019	1.5 J-	mg/L	
							Randall-GW-101019	5.2 J-	mg/L	

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- J- - Estimated concentration; implied low bias
- <() J- - Not detected; associated reporting limit is estimated; implied low bias
- R - Rejected
- "--" - Not Applicable

Table 8

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Parameter	Sample ID	Analyte	RPD		Associated Sample IDs	Qualified Result	Units
			RPD (percent)	Control Limit (percent)			
General Chemistry	MW-6S-GW-190914	Total dissolved solids (TDS)	8	5	MW-10S-GW-190914	355 J	mg/L
					MW-12S-GW-190914	469 J	mg/L
					MW-6S-GW-190914	279 J	mg/L
					MW-11S-GW-190914	278 J	mg/L
					MW-1S-GW-190914	545 J	mg/L
					MW-7S-GW-190914	261 J	mg/L
					MW-8S-GW-190914	301 J	mg/L
					MW-9S-GW-190914	453 J	mg/L
					MW-9S-GW-190914B	417 J	mg/L

Notes:

- RPD - Relative Percent Difference
J - Estimated concentration

Table 9

Qualified Sample Data Due to Analyte Concentrations in the Equipment Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September - October 2019

Parameter	Equipent Blank ID	Blank Date (dd/mm/yyyy)	Analyte	Blank Result *	Associated Sample ID	Original Result	Qualified Result	Units
Metals	EB-01-091619	09/16/2019	Zinc (dissolved)	11.1 J	MW13S-GW-091619	10.0 J	<11.1 J	µg/L
General Chemistry	EB-01-091619	09/16/2019	Chloride	0.41 J	MW13S-GW-091619	1.1 J	<1.1 J	mg/L

Notes:


- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated



Memorandum

November 4, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/424-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Report 10484657
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
July 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Rock Coring Basalt Packer Sampling at the Cenex Harvest Lease Site in Freeman, Washington during July 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of two samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of naphthalene present at a low concentration. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few low recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 5).

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample.

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of toluene present at a low concentration. The associated sample result with a concentration similar to the blank was qualified as non-detect due to contamination as evidenced by the blank (see Table 6).



9. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

10. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019**

Sample Identification	Location	Matrix	Initial Sample Depth (ft. bgs.)	Final Sample Depth (ft. bgs.)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments
							Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
MW30-GW-072319	MW-30	Water	80	100	07/23/2019	10:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW33-GW-072319	MW-33	Water	80	100	07/24/2019	13:30			X				X	X	X	X		MS/MSD
MW34-GW-072319	MW-34	Water	165	185	07/23/2019	16:00	X	X	X	X	X	X	X	X	X	X	X	
TB-072419	--	Water	--	--	07/24/2019	--												Trip Blank

Notes:

- ft. bgs. - Feet below ground surface
- DUP - Laboratory Duplicate
- MS/MSD - Matrix Spike/Matrix Spike Duplicate
- VOCs - Volatile Organic Compounds
- COD - Chemical Oxygen Demand
- TDS - Total Dissolved Solids
- TOC - Total Organic Carbon
- "--" - Not Applicable

Table 2

Analytical Methods
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019

	Location ID:	MW-30	MW-33	MW-34
	Sample Name:	MW30-GW-072319	MW33-GW-072319	MW34-GW-072319
	Sample Date:	07/23/2019	07/24/2019	07/23/2019
	Depth:	80-100 ft bgs	80-100 ft bgs	165-185 ft bgs
Parameters	Unit			
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<16.3	<16.3	<16.3
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	7.0	13.0
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	2.4 J	1.8 J
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	10.5 J
Acrolein	µg/L	<1.2	<1.2	<1.2
Acrylonitrile	µg/L	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	0.37 J	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.078	<0.078	<0.078
Carbon tetrachloride	µg/L	103	11.2	13.1
Chlorobenzene	µg/L	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019

	Location ID:	MW-30	MW-33	MW-34
	Sample Name:	MW30-GW-072319	MW33-GW-072319	MW34-GW-072319
	Sample Date:	07/23/2019	07/24/2019	07/23/2019
	Depth:	80-100 ft bgs	80-100 ft bgs	165-185 ft bgs
Parameters	Unit			
Volatile Organic Compounds (Continued)				
Chloroform (Trichloromethane)	µg/L	5.0	1.0	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.16	<0.16	<0.16
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	0.46 J	0.47 J
m&p-Xylenes	µg/L	<0.31	0.84 J	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	8.1 J	24.5
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2
Toluene	µg/L	<0.29 J	1.0	0.64
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31
Dissolved Gases				
Ethane	µg/L	<3.0	<3.0	<3.0
Ethene	µg/L	<2.9	<2.9	<2.9
Methane	µg/L	<4.9	<4.9	<4.9

Table 3

Analytical Results Summary
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019

	Location ID:	MW-30	MW-33	MW-34
	Sample Name:	MW30-GW-072319	MW33-GW-072319	MW34-GW-072319
	Sample Date:	07/23/2019	07/24/2019	07/23/2019
	Depth:	80-100 ft bgs	80-100 ft bgs	165-185 ft bgs
Parameters	Unit			
Metals				
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	11.1	43.5	45.3
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	0.33 J	<0.28
Chromium (dissolved)	µg/L	<0.66	4.9 J	1.3 J
Cobalt (dissolved)	µg/L	<0.50	2.3 J	17.3
Copper (dissolved)	µg/L	3.3 J	15.6	4.1 J
Lead (dissolved)	µg/L	<2.0	2.1 J	<2.0
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	5.1 J	27.0
Nickel (dissolved)	µg/L	<1.1	3.7 J	24.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	5.8 J	3.5 J	7.7 J
Zinc (dissolved)	µg/L	16.1 J	81.2	17.1 J
General Chemistry				
Alkalinity, total (as CaCO ₃)	mg/L	174	--	233
Chemical oxygen demand (COD)	mg/L	<17.0	--	<17.0
Chloride	mg/L	2.7	6.6	4.9
Nitrate (as N)	mg/L	1.1 J	0.044 J	0.079 J
Nitrite/Nitrate	mg/L	1.1	--	0.056 J
Sulfate	mg/L	4.0 J-	9.5 J-	71.3 J-
Sulfide	mg/L	<0.0054	--	<0.0054
Total dissolved solids (TDS)	mg/L	223	--	366
Total organic carbon (TOC)	mg/L	0.96 J	2.3	1.6

Notes:

- "--" - Not analyzed
- < - Not detected at the associated reporting limit
- < () J - Not detected; associated reporting limit is estimated
- ft bgs - Feet below ground surface
- J- - Estimated concentration; implied low bias
- J - Estimated concentration

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	MW30-GW-072319	48 hours	>48 hours	Nitrate (as N)	1.1 J	mg/L
	MW34-GW-072319	48 hours	>48 hours	Nitrate (as N)	0.079 J	mg/L

Notes:

J - Estimated concentration

Table 5

**Qualified Sample Results Due to Outlying MS/MSD Results
Rock Coring Basalt Packer Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
July 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units
			% Recovery	% Recovery	(percent)	% Recovery	RPD			
General Chemistry	MW33-GW-072319	Sulfate	87	89	1	90-110	20	MW30-GW-072319	4.0 J-	mg/L
								MW34-GW-072319	71.3 J-	mg/L
									MW33-GW-072319	9.5 J-

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J- - Estimated concentration; implied low bias

Table 6

**Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
 Rock Coring Basalt Packer Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 July 2019**

Parameter	Blank Date (mm/dd/yyyy)	Analyte	Blank Result *	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	07/24/2019	Toluene	0.22 J	MW30-GW-072319	0.29 J	<0.29 J	µg/L

Notes:


- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated
- VOCs - Volatile Organic Compounds



Memorandum

November 5, 2019

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/426-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10492667 and 10493761
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
September 2019**

1. Introduction

This document details a reduced validation of analytical results for air samples collected in support of the Davey Residential Air Sampling at the Cenex Harvest Lease Site in Freeman, Washington during September 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 2 and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016.

2. Sample Holding Time and Preservation

The sample holding time criterion for the analysis is presented in the method. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

Canister batch certification blank results were also reviewed. All canister batch certification blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. All LCS recoveries were within associated control limits, demonstrating acceptable analytical accuracy.

5. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, a duplicate sample was prepared and analyzed by the laboratory as specified in Table 1. The duplicate analysis performed was acceptable, demonstrating acceptable analytical precision.

6. Field QA/QC Samples

The field QA/QC consisted of one field duplicate sample set.

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.



7. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. No positive analyte detections less than the RL but greater than the MDL were reported. Non-detect results were presented as non-detect at the MDL in Table 3.

8. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>	
					VOCs	Comments
DAVEY-AA1-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:17	X	DUP
DAVEY-AA2-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:20	X	
DAVEY-IA1-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:18	X	
DAVEY-IA2-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:19	X	
DAVEY-IA3-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:19	X	
DAVEY-IA4-091919	Davey Residence - Indoor Air	Air	09/20/2019	10:21	X	
Davey2-AA1-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:33	X	
Davey2-AA2-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:35	X	
Davey2-IA1-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:40	X	
Davey2-IA2-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:41	X	
Davey2-IA3-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:42	X	
Davey2-IA4-092619	Davey Residence - Indoor Air	Air	09/27/2019	08:35	X	
Davey2-FD-092619	Davey Residence - Indoor Air	Air	09/27/2019	--	X	FD (Davey2-IA1-092619)

Notes:

- DUP - Laboratory Duplicate
FD - Field Duplicate sample of sample in parenthesis
VOCs - Volatile Organic Compounds
"--" - Not Applicable

Table 2

Analytical Methods
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	TO-15 ⁽¹⁾	Air

Notes:

- (1) - EPA Method TO-15 - "Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

	Location ID:	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air
	Sample Name:	DAVEY-AA1-091919	DAVEY-AA2-091919	DAVEY-IA1-091919	DAVEY-IA2-091919
	Sample Date:	09/20/2019	09/20/2019	09/20/2019	09/20/2019
Parameters	Unit				
Volatile Organic Compounds					
Carbon tetrachloride	µg/m3	0.67	0.47	0.60	0.63
Chloroform (Trichloromethane)	µg/m3	0.15	0.14	0.10	0.11

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Location ID:	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air
Sample Name:	DAVEY-IA3-091919	DAVEY-IA4-091919	DAVEY-AA1-091919 cert 3370	DAVEY-AA2-091919 cert 2048
Sample Date:	09/20/2019	09/20/2019	09/20/2019	09/20/2019
Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	0.59	0.74	<0.042
Chloroform (Trichloromethane)	µg/m3	0.11	0.18	<0.029

Table 3

**Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019**

Location ID:	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air
Sample Name:	Davey2-AA1-092619	Davey2-AA2-092619	Davey2-IA1-092619
Sample Date:	09/27/2019	09/27/2019	09/27/2019

Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	0.73	0.58	0.61
Chloroform (Trichloromethane)	µg/m3	0.13	0.12	0.13

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Location ID: Sample Name: Sample Date:	Davey Residence - Indoor Air Davey2-IA2-092619 09/27/2019	Davey Residence - Indoor Air Davey2-IA3-092619 09/27/2019	Davey Residence - Indoor Air Davey2-IA4-092619 09/27/2019
Parameters	Unit		
Volatile Organic Compounds			
Carbon tetrachloride	µg/m3	0.49	0.54
Chloroform (Trichloromethane)	µg/m3	0.11	0.14

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

	Location ID:	Davey Residence - Indoor Air	Davey Residence - Indoor Air	Davey Residence - Indoor Air
	Sample Name:	Davey2-AA1-092619 cert 3371	Davey2-AA2-092619 cert 3586	Davey2-FD-092619
	Sample Date:	09/27/2019	09/27/2019	09/27/2019
				Duplicate
Parameters	Unit			
Volatile Organic Compounds				
Carbon tetrachloride	µg/m3	<0.042	<0.042	0.52
Chloroform (Trichloromethane)	µg/m3	<0.029	<0.029	0.15

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Location ID: Sample Name: Sample Date:	Davey Residence - Indoor Air DAVEY-IA1-091919 cert 3363 09/20/2019	Davey Residence - Indoor Air DAVEY-IA2-091919 cert 3318 09/20/2019	Davey Residence - Indoor Air DAVEY-IA3-091919 cert 2382 09/20/2019
Parameters	Unit		
Volatile Organic Compounds			
Carbon tetrachloride	µg/m3	<0.042	<0.042
Chloroform (Trichloromethane)	µg/m3	<0.029	<0.029

Table 3

**Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019**

Location ID: Sample Name: Sample Date:	Davey Residence - Indoor Air DAVEY-IA4-091919 cert 2825 09/20/2019	Davey Residence - Indoor Air Davey2-FD-092619 cert 2812 09/27/2019	Davey Residence - Indoor Air Davey2-IA1-092619 cert 3635 09/27/2019
Parameters	Unit		
Volatile Organic Compounds			
Carbon tetrachloride	µg/m3	<0.042	<0.042
Chloroform (Trichloromethane)	µg/m3	<0.029	<0.029

Table 3

Analytical Results Summary
Davey Residential Air Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
September 2019

Location ID: Sample Name: Sample Date:	Davey Residence - Indoor Air Davey2-IA2-092619 cert 2123 09/27/2019	Davey Residence - Indoor Air Davey2-IA3-092619 cert 2114 09/27/2019	Davey Residence - Indoor Air Davey2-IA4-092619 cert 3456 09/27/2019
Parameters			
	Unit		
Volatile Organic Compounds			
Carbon tetrachloride	µg/m3	<0.042	<0.042
Chloroform (Trichloromethane)	µg/m3	<0.029	<0.029

Notes:

< - Not detected at the associated reporting limit

December 13, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

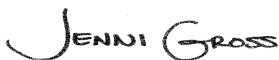
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501570

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501570001	Stark-GW-120519	Water	12/05/19 12:30	12/06/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501570001	Stark-GW-120519	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649118

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3491524)
 - 1,2,3-Trichlorobenzene
- MSD (Lab ID: 3491525)
 - Isopropylbenzene (Cumene)

Additional Comments:

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3491522)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3491523)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3491524)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3491525)
 - 1,2-Dichloroethene (Total)
- Stark-GW-120519 (Lab ID: 10501570001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3491522)
 - Dichlorofluoromethane
- LCS (Lab ID: 3491523)
 - Dichlorofluoromethane
- MS (Lab ID: 3491524)
 - Dichlorofluoromethane
- MSD (Lab ID: 3491525)
 - Dichlorofluoromethane
- Stark-GW-120519 (Lab ID: 10501570001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Sample: Stark-GW-120519 **Lab ID: 10501570001** Collected: 12/05/19 12:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 07:57	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 07:57	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 07:57	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 07:57	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 07:57	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 07:57	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 07:57	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 07:57	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 07:57	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 07:57	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 07:57	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 07:57	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 07:57	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 07:57	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 07:57	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 07:57	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 07:57	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 07:57	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 07:57	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 07:57	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 07:57	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 07:57	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 07:57	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 07:57	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 07:57	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 07:57	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 07:57	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 07:57	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 07:57	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 07:57	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 07:57	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 07:57	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 07:57	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 07:57	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 07:57	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 07:57	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 07:57	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 07:57	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 07:57	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 07:57	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 07:57	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 07:57	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 07:57	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 07:57	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 07:57	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 07:57	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Sample: **Stark-GW-120519** Lab ID: **10501570001** Collected: 12/05/19 12:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 07:57	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 07:57	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 07:57	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 07:57	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 07:57	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 07:57	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 07:57	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 07:57	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 07:57	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 07:57	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 07:57	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 07:57	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 07:57	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 07:57	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 07:57	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 07:57	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 07:57	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 07:57	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 07:57	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 07:57	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 07:57	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 07:57	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 07:57	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 07:57	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 07:57	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 07:57	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 07:57	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 07:57	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 07:57	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 07:57	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 07:57	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 07:57	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 07:57	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 07:57	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%	75-136		1		12/11/19 07:57	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 07:57	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		12/11/19 07:57	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501570

QC Batch: 649118 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501570001

METHOD BLANK: 3491522 Matrix: Water
Associated Lab Samples: 10501570001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/10/19 22:47	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/10/19 22:47	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/10/19 22:47	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/10/19 22:47	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/10/19 22:47	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/10/19 22:47	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/10/19 22:47	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/10/19 22:47	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/10/19 22:47	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/10/19 22:47	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/10/19 22:47	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/10/19 22:47	
Acetone	ug/L	<9.2	20.0	9.2	12/10/19 22:47	
Acrolein	ug/L	<3.2	10.0	3.2	12/10/19 22:47	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/10/19 22:47	
Benzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/10/19 22:47	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/10/19 22:47	
Bromoform	ug/L	<0.80	4.0	0.80	12/10/19 22:47	
Bromomethane	ug/L	<1.8	4.0	1.8	12/10/19 22:47	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/10/19 22:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501570001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Chloroethane	ug/L	<0.49	1.0	0.49	12/10/19 22:47	
Chloroform	ug/L	<0.45	4.0	0.45	12/10/19 22:47	
Chloromethane	ug/L	<0.48	4.0	0.48	12/10/19 22:47	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/10/19 22:47	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/10/19 22:47	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/10/19 22:47	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/10/19 22:47	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/10/19 22:47	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/10/19 22:47	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Naphthalene	ug/L	<0.48	1.0	0.48	12/10/19 22:47	
o-Xylene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
Styrene	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/10/19 22:47	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/10/19 22:47	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/10/19 22:47	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/10/19 22:47	
Toluene	ug/L	<0.083	0.50	0.083	12/10/19 22:47	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/10/19 22:47	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/10/19 22:47	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/10/19 22:47	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/10/19 22:47	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/10/19 22:47	
1,2-Dichloroethane-d4 (S)	%	96	75-136		12/10/19 22:47	
4-Bromofluorobenzene (S)	%	96	75-125		12/10/19 22:47	
Toluene-d8 (S)	%	113	75-125		12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.7	97	68-141	
1,1,1-Trichloroethane	ug/L	10	9.7	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	8.5	85	73-125	
1,1,2-Trichloroethane	ug/L	10	10.2	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	11.2	112	69-132	
1,1-Dichloroethane	ug/L	10	9.0	90	73-125	
1,1-Dichloroethene	ug/L	10	10.2	102	71-126	
1,1-Dichloropropene	ug/L	10	9.5	95	73-126	
1,2,3-Trichlorobenzene	ug/L	10	11.3	113	72-126	
1,2,3-Trichloropropane	ug/L	10	8.9	89	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.6	116	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	22.4	90	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	9.2	92	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	74-125	N2
1,2-Dichloropropane	ug/L	10	8.2	82	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.2	112	75-127	
1,3-Dichlorobenzene	ug/L	10	11.3	113	75-126	
1,3-Dichloropropane	ug/L	10	9.8	98	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	226	113	72-129	
2,2,4-Trimethylpentane	ug/L	10	8.6	86	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	34.8	70	59-144	
2-Chlorotoluene	ug/L	10	10.9	109	75-127	
2-Hexanone	ug/L	50	43.4	87	73-134	
4-Chlorotoluene	ug/L	10	11.1	111	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	43.8	88	62-141	
Acetone	ug/L	50	36.4	73	60-137	
Acrolein	ug/L	100	67.6	68	60-141	
Acrylonitrile	ug/L	100	82.0	82	75-129	
Benzene	ug/L	10	9.2	92	73-125	
Bromobenzene	ug/L	10	10.6	106	73-125	
Bromochloromethane	ug/L	10	9.9	99	75-135	
Bromodichloromethane	ug/L	10	7.7	77	75-125	
Bromoform	ug/L	10	9.6	96	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.8	98	47-137	
Carbon tetrachloride	ug/L	10	10.3	103	75-125	
Chlorobenzene	ug/L	10	10.6	106	75-125	
Chloroethane	ug/L	10	7.5	75	63-136	
Chloroform	ug/L	10	9.9	99	73-128	
Chloromethane	ug/L	10	8.9	89	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.5	95	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.6	96	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.2	92	75-125	
Dibromomethane	ug/L	10	10.3	103	75-125	
Dichlorodifluoromethane	ug/L	10	10.4	104	63-132	
Dichlorofluoromethane	ug/L	10	9.5	95	68-127	
Diisopropyl ether	ug/L	10	7.7	77	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.9	79	75-125	
Ethylbenzene	ug/L	10	11.2	112	75-125	
Hexachloro-1,3-butadiene	ug/L	10	11.6	116	72-134	
Isopropylbenzene (Cumene)	ug/L	10	11.7	117	75-125	
m&p-Xylene	ug/L	20	23.9	119	75-126	
Methyl-tert-butyl ether	ug/L	10	8.2	82	75-125	
Methylene Chloride	ug/L	10	10.0	100	70-125	
n-Butylbenzene	ug/L	10	11.0	110	75-126	
n-Propylbenzene	ug/L	10	11.0	110	73-127	
Naphthalene	ug/L	10	11.1	111	63-128	
o-Xylene	ug/L	10	12.4	124	75-128	
p-Isopropyltoluene	ug/L	10	12.3	123	75-125	
sec-Butylbenzene	ug/L	10	11.9	119	75-126	
Styrene	ug/L	10	10.8	108	75-125	
tert-Amylmethyl ether	ug/L	10	7.9	79	75-125	
tert-Butyl Alcohol	ug/L	100	93.8	94	75-130	
tert-Butylbenzene	ug/L	10	11.9	119	75-131	
Tetrachloroethene	ug/L	10	11.6	116	74-125	
Tetrahydrofuran	ug/L	100	93.8	94	64-138	
Toluene	ug/L	10	11.0	110	74-125	
trans-1,2-Dichloroethene	ug/L	10	9.8	98	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	19.1	76	60-127	
Trichloroethene	ug/L	10	10.5	105	75-127	
Trichlorofluoromethane	ug/L	10	10.9	109	72-133	
Vinyl acetate	ug/L	10	7.5J	75	61-129	
Vinyl chloride	ug/L	10	10	100	75-128	
Xylene (Total)	ug/L	30	36.3	121	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			106	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491524 3491525

Parameter	Units	10501574001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.2	105	102	108	75-140	3	30	
1,1,1-Trichloroethane	ug/L	<0.14	10	10	10.1	10.8	101	108	108	74-136	7	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	10.3	9.1	103	91	91	66-134	12	30	
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.1	9.9	101	99	99	75-126	2	30	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3491524		3491525									
Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	11.8	12.3	118	123	65-146	4	30		
1,1-Dichloroethane	ug/L	<0.17	10	10	9.6	9.2	96	92	68-132	4	30		
1,1-Dichloroethene	ug/L	<0.16	10	10	10.7	10.4	107	104	66-139	3	30		
1,1-Dichloropropene	ug/L	<0.20	10	10	9.9	10.1	99	101	67-134	2	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	13.0	12.2	130	122	67-129	6	30	M1	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	10.9	10.2	109	102	69-128	6	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	13.3	13.2	133	132	65-140	1	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.4	12.8	124	128	71-133	3	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	26.5	26.1	106	105	54-138	1	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	10.4	10.1	104	101	68-125	3	30		
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.5	12.3	115	123	74-136	7	30		
1,2-Dichloroethane	ug/L	<0.22	10	10	9.2	9.4	92	94	68-125	2	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.2	19.7	96	98	71-126	2	30	N2	
1,2-Dichloropropane	ug/L	<0.16	10	10	9.6	9.1	96	91	67-125	6	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.1	12.9	121	129	68-137	7	30		
1,3-Dichlorobenzene	ug/L	<0.16	10	10	11.9	12.5	119	125	75-131	5	30		
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	9.7	102	97	71-125	5	30		
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.3	11.9	113	119	74-126	6	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	228	201	114	100	68-125	13	30		
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	10.6	8.9	106	89	54-129	17	30		
2,2-Dichloropropane	ug/L	<0.17	10	10	9.8	10	98	100	69-139	1	30		
2-Butanone (MEK)	ug/L	<0.99	50	50	38.3	37.4	77	75	54-144	2	30		
2-Chlorotoluene	ug/L	<0.16	10	10	11.7	12.3	117	123	75-134	5	30		
2-Hexanone	ug/L	<0.88	50	50	52.4	47.7	105	95	58-137	9	30		
4-Chlorotoluene	ug/L	<0.13	10	10	11.9	12.2	119	122	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	52.3	49.1	105	98	60-129	6	30		
Acetone	ug/L	<9.2	50	50	37.1	42.0	74	84	62-132	12	30		
Acrolein	ug/L	<3.2	100	100	95.4	93.6	95	94	30-150	2	30		
Acrylonitrile	ug/L	<0.91	100	100	87.2	84.7	87	85	68-125	3	30		
Benzene	ug/L	<0.10	10	10	9.7	9.5	97	95	68-125	2	30		
Bromobenzene	ug/L	<0.21	10	10	11.2	11.1	112	111	73-126	0	30		
Bromochloromethane	ug/L	<0.27	10	10	8.9	9.6	89	96	66-143	7	30		
Bromodichloromethane	ug/L	<0.22	10	10	9.5	9.3	95	93	74-125	2	30		
Bromoform	ug/L	<0.80	10	10	10.4	10.2	104	102	64-134	2	30		
Bromomethane	ug/L	<1.8	10	10	7.4	7.1	74	71	30-150	4	30		
Carbon disulfide	ug/L	<0.19	10	10	10.2	9.7	102	97	43-147	5	30		
Carbon tetrachloride	ug/L	<0.19	10	10	10.9	11.7	109	117	71-143	7	30		
Chlorobenzene	ug/L	<0.17	10	10	10.6	10.9	106	109	75-125	3	30		
Chloroethane	ug/L	<0.49	10	10	7.8	7.5	78	75	75-129	3	30		
Chloroform	ug/L	<0.45	10	10	8.8	8.8	88	88	66-132	1	30		
Chloromethane	ug/L	<0.48	10	10	9.4	9.0	94	90	53-137	4	30		
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	9.0	9.3	90	93	67-133	2	30		
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	11.1	9.2	111	92	66-125	19	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Parameter	Units	10501574001		3491524		3491525		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.3	9.2	93	92	62-132	1	30			
Dibromomethane	ug/L	<0.16	10	10	9.5	9.6	95	96	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	10	10	10.8	10.8	108	108	71-142	0	30			
Dichlorofluoromethane	ug/L	<0.14	10	10	9.8	9.7	98	97	70-131	2	30			
Diisopropyl ether	ug/L	<0.13	10	10	8.4	8.2	84	82	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	8.3	8.0	83	80	66-128	3	30			
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.8	112	118	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	13.4	11.8	134	118	68-143	13	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.6	13.1	116	131	74-130	11	30 M1			
m&p-Xylene	ug/L	<0.31	20	20	23.7	25.3	118	126	69-132	7	30			
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.8	8.7	88	87	65-131	1	30			
Methylene Chloride	ug/L	<0.98	10	10	9.6	9.7	96	97	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	10	10	12.2	12.0	122	120	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	10	10	11.9	12.7	119	127	67-138	7	30			
Naphthalene	ug/L	<0.48	10	10	12.4	12.5	124	125	60-130	1	30			
o-Xylene	ug/L	<0.16	10	10	12.1	12.9	121	129	69-131	7	30			
p-Isopropyltoluene	ug/L	<0.15	10	10	13.2	13.3	132	133	72-133	0	30			
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.3	131	133	73-134	1	30			
Styrene	ug/L	<0.19	10	10	10.1	10.8	101	108	72-125	7	30			
tert-Amylmethyl ether	ug/L	<0.11	10	10	8.7	8.2	87	82	67-125	6	30			
tert-Butyl Alcohol	ug/L	<1.2	100	100	88.3	97.3	88	97	64-137	10	30			
tert-Butylbenzene	ug/L	<0.15	10	10	12.7	13.4	127	134	70-143	6	30			
Tetrachloroethene	ug/L	<0.17	10	10	12.5	12.6	125	126	72-129	0	30			
Tetrahydrofuran	ug/L	<2.2	100	100	92.4	102	92	102	66-128	10	30			
Toluene	ug/L	<0.083	10	10	11.3	11.2	113	112	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	10.2	10.4	102	104	62-137	2	30			
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	9.8	9.8	98	98	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	23.7	21.2	95	85	45-128	11	30			
Trichloroethene	ug/L	<0.15	10	10	10.8	10.5	108	105	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	10	10	11.2	11.4	112	114	75-139	1	30			
Vinyl acetate	ug/L	<1.1	10	10	7.8J	7.7J	78	77	51-135		30			
Vinyl chloride	ug/L	<0.092	10	10	10.3	9.8	103	98	68-146	5	30			
Xylene (Total)	ug/L	<0.31	30	30	35.7	38.2	119	127	67-137	7	30			
1,2-Dichloroethane-d4 (S)	%						100	100	75-136					
4-Bromofluorobenzene (S)	%						99	96	75-125					
Toluene-d8 (S)	%						107	105	75-125					

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501570

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501570001	Stark-GW-120519	EPA 8260B	649118		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document


The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
2146349

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: Jacobs		Report To: Mark Ochsmor, Brad Ostapkevicz		Attention: Anne Walsh	
Address: 999 W. Riverside Ave		Copy To: Steve Demus, Jon Espinoza		Company Name: UPRR	
Email To: Ste. 500, Spokane, wa 99201		Purchase Order No.: PEDD-1497		Address: 1400 W. 52nd Ave, Denver CO 80221	
Phone: _____ Fax: _____		Project Name: Freeman WA-Grain handling facility		Pace Quote Reference: Contract # 758938	
Requested Due Date/TAT: 10 DAY		Project Number: _____		Pace Project Manager: Jennifer Gross	
				Pace Profile #: 36447/4	
REGULATORY AGENCY					
<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____					
Site Location				STATE: WA/Freeman	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test Y/N Low Level Val. by SPAD	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other			
					DATE	TIME	DATE	TIME													
1	Stark-GW-120519		WT	G	12/5/19	1230			3										001		
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

WO#: 10501570



10501570

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	KE 88/Jacobs	12/5/19	1600	CM PACE	12/6/19	850	04.3	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Karla Savage	DATE Signed (MM/DD/YY): 12/05/19				
SIGNATURE of SAMPLER: <i>KE 88</i>					

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Client Name: CH2M Project #: _____

WO#: 10501570
 PM: JMG Due Date: 12/20/19
 CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9400 (8360/8370)

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.3, 0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>40.1</u>	Cooler Temp Corrected w/temp blank: <u>0.4, 0.3</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: lu 12-6-19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>218302 / 236659</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: _____

JENNIFER GRASS

Date: 120919

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: RNC Page 19 of 19

December 13, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

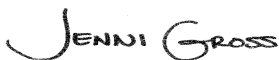
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501571

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501571

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501571001	Lashaw-GW-120519	Water	12/05/19 14:00	12/06/19 08:50

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501571

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501571001	Lashaw-GW-120519	EPA 8260B	DS2	83	PASI-M

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501571001	Lashaw-GW-120519					
EPA 8260B	Carbon tetrachloride	0.54	ug/L	0.50	12/11/19 03:58	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649118

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3491524)
 - 1,2,3-Trichlorobenzene
- MSD (Lab ID: 3491525)
 - Isopropylbenzene (Cumene)

Additional Comments:

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3491522)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3491523)
 - 1,2-Dichloroethene (Total)
- Lashaw-GW-120519 (Lab ID: 10501571001)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3491524)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3491525)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3491522)
 - Dichlorofluoromethane
- LCS (Lab ID: 3491523)
 - Dichlorofluoromethane
- Lashaw-GW-120519 (Lab ID: 10501571001)
 - Dichlorofluoromethane
- MS (Lab ID: 3491524)
 - Dichlorofluoromethane
- MSD (Lab ID: 3491525)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Sample: **Lashaw-GW-120519** Lab ID: **10501571001** Collected: 12/05/19 14:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 03:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 03:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 03:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 03:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 03:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 03:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 03:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 03:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 03:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 03:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 03:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 03:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 03:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 03:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 03:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 03:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 03:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 03:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 03:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 03:58	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 03:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 03:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 03:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 03:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 03:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 03:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 03:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 03:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 03:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 03:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 03:58	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 03:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 03:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 03:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 03:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 03:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 03:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 03:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 03:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 03:58	75-15-0	
Carbon tetrachloride	0.54	ug/L	0.50	0.19	1		12/11/19 03:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 03:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 03:58	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 03:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 03:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 03:58	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Sample: Lashaw-GW-120519 **Lab ID: 10501571001** Collected: 12/05/19 14:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 03:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 03:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 03:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 03:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 03:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 03:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 03:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 03:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 03:58	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 03:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 03:58	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 03:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 03:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 03:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 03:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 03:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 03:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 03:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 03:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 03:58	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 03:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 03:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 03:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 03:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 03:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 03:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 03:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 03:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 03:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 03:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 03:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 03:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 03:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 03:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 03:58	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 03:58	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 03:58	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

QC Batch: 649118

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10501571001

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501571001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/10/19 22:47	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/10/19 22:47	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/10/19 22:47	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/10/19 22:47	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/10/19 22:47	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/10/19 22:47	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/10/19 22:47	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/10/19 22:47	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/10/19 22:47	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/10/19 22:47	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/10/19 22:47	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/10/19 22:47	
Acetone	ug/L	<9.2	20.0	9.2	12/10/19 22:47	
Acrolein	ug/L	<3.2	10.0	3.2	12/10/19 22:47	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/10/19 22:47	
Benzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/10/19 22:47	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/10/19 22:47	
Bromoform	ug/L	<0.80	4.0	0.80	12/10/19 22:47	
Bromomethane	ug/L	<1.8	4.0	1.8	12/10/19 22:47	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501571001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Chloroethane	ug/L	<0.49	1.0	0.49	12/10/19 22:47	
Chloroform	ug/L	<0.45	4.0	0.45	12/10/19 22:47	
Chloromethane	ug/L	<0.48	4.0	0.48	12/10/19 22:47	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/10/19 22:47	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/10/19 22:47	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/10/19 22:47	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/10/19 22:47	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/10/19 22:47	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/10/19 22:47	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Naphthalene	ug/L	<0.48	1.0	0.48	12/10/19 22:47	
o-Xylene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
Styrene	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/10/19 22:47	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/10/19 22:47	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/10/19 22:47	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/10/19 22:47	
Toluene	ug/L	<0.083	0.50	0.083	12/10/19 22:47	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/10/19 22:47	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/10/19 22:47	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/10/19 22:47	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/10/19 22:47	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/10/19 22:47	
1,2-Dichloroethane-d4 (S)	%	96	75-136		12/10/19 22:47	
4-Bromofluorobenzene (S)	%	96	75-125		12/10/19 22:47	
Toluene-d8 (S)	%	113	75-125		12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.7	97	68-141	
1,1,1-Trichloroethane	ug/L	10	9.7	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	8.5	85	73-125	
1,1,2-Trichloroethane	ug/L	10	10.2	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	11.2	112	69-132	
1,1-Dichloroethane	ug/L	10	9.0	90	73-125	
1,1-Dichloroethene	ug/L	10	10.2	102	71-126	
1,1-Dichloropropene	ug/L	10	9.5	95	73-126	
1,2,3-Trichlorobenzene	ug/L	10	11.3	113	72-126	
1,2,3-Trichloropropane	ug/L	10	8.9	89	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.6	116	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	22.4	90	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	9.2	92	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	74-125	N2
1,2-Dichloropropane	ug/L	10	8.2	82	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.2	112	75-127	
1,3-Dichlorobenzene	ug/L	10	11.3	113	75-126	
1,3-Dichloropropane	ug/L	10	9.8	98	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	226	113	72-129	
2,2,4-Trimethylpentane	ug/L	10	8.6	86	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	34.8	70	59-144	
2-Chlorotoluene	ug/L	10	10.9	109	75-127	
2-Hexanone	ug/L	50	43.4	87	73-134	
4-Chlorotoluene	ug/L	10	11.1	111	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	43.8	88	62-141	
Acetone	ug/L	50	36.4	73	60-137	
Acrolein	ug/L	100	67.6	68	60-141	
Acrylonitrile	ug/L	100	82.0	82	75-129	
Benzene	ug/L	10	9.2	92	73-125	
Bromobenzene	ug/L	10	10.6	106	73-125	
Bromochloromethane	ug/L	10	9.9	99	75-135	
Bromodichloromethane	ug/L	10	7.7	77	75-125	
Bromoform	ug/L	10	9.6	96	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.8	98	47-137	
Carbon tetrachloride	ug/L	10	10.3	103	75-125	
Chlorobenzene	ug/L	10	10.6	106	75-125	
Chloroethane	ug/L	10	7.5	75	63-136	
Chloroform	ug/L	10	9.9	99	73-128	
Chloromethane	ug/L	10	8.9	89	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.5	95	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.6	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501571

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.2	92	75-125	
Dibromomethane	ug/L	10	10.3	103	75-125	
Dichlorodifluoromethane	ug/L	10	10.4	104	63-132	
Dichlorofluoromethane	ug/L	10	9.5	95	68-127	
Diisopropyl ether	ug/L	10	7.7	77	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.9	79	75-125	
Ethylbenzene	ug/L	10	11.2	112	75-125	
Hexachloro-1,3-butadiene	ug/L	10	11.6	116	72-134	
Isopropylbenzene (Cumene)	ug/L	10	11.7	117	75-125	
m&p-Xylene	ug/L	20	23.9	119	75-126	
Methyl-tert-butyl ether	ug/L	10	8.2	82	75-125	
Methylene Chloride	ug/L	10	10.0	100	70-125	
n-Butylbenzene	ug/L	10	11.0	110	75-126	
n-Propylbenzene	ug/L	10	11.0	110	73-127	
Naphthalene	ug/L	10	11.1	111	63-128	
o-Xylene	ug/L	10	12.4	124	75-128	
p-Isopropyltoluene	ug/L	10	12.3	123	75-125	
sec-Butylbenzene	ug/L	10	11.9	119	75-126	
Styrene	ug/L	10	10.8	108	75-125	
tert-Amylmethyl ether	ug/L	10	7.9	79	75-125	
tert-Butyl Alcohol	ug/L	100	93.8	94	75-130	
tert-Butylbenzene	ug/L	10	11.9	119	75-131	
Tetrachloroethene	ug/L	10	11.6	116	74-125	
Tetrahydrofuran	ug/L	100	93.8	94	64-138	
Toluene	ug/L	10	11.0	110	74-125	
trans-1,2-Dichloroethene	ug/L	10	9.8	98	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	19.1	76	60-127	
Trichloroethene	ug/L	10	10.5	105	75-127	
Trichlorofluoromethane	ug/L	10	10.9	109	72-133	
Vinyl acetate	ug/L	10	7.5J	75	61-129	
Vinyl chloride	ug/L	10	10	100	75-128	
Xylene (Total)	ug/L	30	36.3	121	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			106	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491524 3491525

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501574001	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.2	105	102	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	10.1	10.8	101	108	74-136	7	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	10.3	9.1	103	91	66-134	12	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.1	9.9	101	99	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3491524		3491525								
Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	11.8	12.3	118	123	65-146	4	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	9.6	9.2	96	92	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	10.7	10.4	107	104	66-139	3	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.9	10.1	99	101	67-134	2	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	13.0	12.2	130	122	67-129	6	30	M1
1,2,3-Trichloropropane	ug/L	<0.26	10	10	10.9	10.2	109	102	69-128	6	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	13.3	13.2	133	132	65-140	1	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.4	12.8	124	128	71-133	3	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	26.5	26.1	106	105	54-138	1	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	10.4	10.1	104	101	68-125	3	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.5	12.3	115	123	74-136	7	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	9.2	9.4	92	94	68-125	2	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.2	19.7	96	98	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.6	9.1	96	91	67-125	6	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.1	12.9	121	129	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	11.9	12.5	119	125	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	9.7	102	97	71-125	5	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.3	11.9	113	119	74-126	6	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	228	201	114	100	68-125	13	30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	10.6	8.9	106	89	54-129	17	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	9.8	10	98	100	69-139	1	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	38.3	37.4	77	75	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.7	12.3	117	123	75-134	5	30	
2-Hexanone	ug/L	<0.88	50	50	52.4	47.7	105	95	58-137	9	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.9	12.2	119	122	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	52.3	49.1	105	98	60-129	6	30	
Acetone	ug/L	<9.2	50	50	37.1	42.0	74	84	62-132	12	30	
Acrolein	ug/L	<3.2	100	100	95.4	93.6	95	94	30-150	2	30	
Acrylonitrile	ug/L	<0.91	100	100	87.2	84.7	87	85	68-125	3	30	
Benzene	ug/L	<0.10	10	10	9.7	9.5	97	95	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	11.2	11.1	112	111	73-126	0	30	
Bromochloromethane	ug/L	<0.27	10	10	8.9	9.6	89	96	66-143	7	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.5	9.3	95	93	74-125	2	30	
Bromoform	ug/L	<0.80	10	10	10.4	10.2	104	102	64-134	2	30	
Bromomethane	ug/L	<1.8	10	10	7.4	7.1	74	71	30-150	4	30	
Carbon disulfide	ug/L	<0.19	10	10	10.2	9.7	102	97	43-147	5	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.9	11.7	109	117	71-143	7	30	
Chlorobenzene	ug/L	<0.17	10	10	10.6	10.9	106	109	75-125	3	30	
Chloroethane	ug/L	<0.49	10	10	7.8	7.5	78	75	75-129	3	30	
Chloroform	ug/L	<0.45	10	10	8.8	8.8	88	88	66-132	1	30	
Chloromethane	ug/L	<0.48	10	10	9.4	9.0	94	90	53-137	4	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	9.0	9.3	90	93	67-133	2	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	11.1	9.2	111	92	66-125	19	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Parameter	Units	10501574001		3491524		3491525		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibromochloromethane	ug/L	<0.12	10	10	9.3	9.2	93	92	62-132	1	30			
Dibromomethane	ug/L	<0.16	10	10	9.5	9.6	95	96	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	10	10	10.8	10.8	108	108	71-142	0	30			
Dichlorofluoromethane	ug/L	<0.14	10	10	9.8	9.7	98	97	70-131	2	30			
Diisopropyl ether	ug/L	<0.13	10	10	8.4	8.2	84	82	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	8.3	8.0	83	80	66-128	3	30			
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.8	112	118	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	13.4	11.8	134	118	68-143	13	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.6	13.1	116	131	74-130	11	30 M1			
m&p-Xylene	ug/L	<0.31	20	20	23.7	25.3	118	126	69-132	7	30			
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.8	8.7	88	87	65-131	1	30			
Methylene Chloride	ug/L	<0.98	10	10	9.6	9.7	96	97	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	10	10	12.2	12.0	122	120	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	10	10	11.9	12.7	119	127	67-138	7	30			
Naphthalene	ug/L	<0.48	10	10	12.4	12.5	124	125	60-130	1	30			
o-Xylene	ug/L	<0.16	10	10	12.1	12.9	121	129	69-131	7	30			
p-Isopropyltoluene	ug/L	<0.15	10	10	13.2	13.3	132	133	72-133	0	30			
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.3	131	133	73-134	1	30			
Styrene	ug/L	<0.19	10	10	10.1	10.8	101	108	72-125	7	30			
tert-Amylmethyl ether	ug/L	<0.11	10	10	8.7	8.2	87	82	67-125	6	30			
tert-Butyl Alcohol	ug/L	<1.2	100	100	88.3	97.3	88	97	64-137	10	30			
tert-Butylbenzene	ug/L	<0.15	10	10	12.7	13.4	127	134	70-143	6	30			
Tetrachloroethene	ug/L	<0.17	10	10	12.5	12.6	125	126	72-129	0	30			
Tetrahydrofuran	ug/L	<2.2	100	100	92.4	102	92	102	66-128	10	30			
Toluene	ug/L	<0.083	10	10	11.3	11.2	113	112	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	10.2	10.4	102	104	62-137	2	30			
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	9.8	9.8	98	98	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	23.7	21.2	95	85	45-128	11	30			
Trichloroethene	ug/L	<0.15	10	10	10.8	10.5	108	105	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	10	10	11.2	11.4	112	114	75-139	1	30			
Vinyl acetate	ug/L	<1.1	10	10	7.8J	7.7J	78	77	51-135		30			
Vinyl chloride	ug/L	<0.092	10	10	10.3	9.8	103	98	68-146	5	30			
Xylene (Total)	ug/L	<0.31	30	30	35.7	38.2	119	127	67-137	7	30			
1,2-Dichloroethane-d4 (S)	%						100	100	75-136					
4-Bromofluorobenzene (S)	%						99	96	75-125					
Toluene-d8 (S)	%						107	105	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501571

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501571001	Lashaw-GW-120519	EPA 8260B	649118		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
2146348

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <u>Jacobs</u>		Report To: <u>Mark Ochsner, Brad Ostapkowski</u>		Attention: <u>Anne Walsh</u>	
Address: <u>999 W. Riverside Ste 500</u> <u>Spokane, WA 99201</u>		Copy To: <u>Steve Demis, Jon Espinoza</u> <u>David Hodson, UPRR-Sydat@qtd.com</u>		Company Name: <u>UPRR</u>	
Email To:		Purchase Order No.: <u>PEDD # 1497</u>		Address: <u>1400 W. 2nd Denver CO</u>	
Phone:		Project Name: <u>Freemans WA - Grain Facility</u>		Pace Quote Reference: <u>Contract # 758938 80021</u>	
Requested Due Date/TAT: <u>10 day</u>		Project Number: <u>1497</u>		Pace Project Manager: <u>Jennifer Gross</u>	
				Pace Profile #: <u>36447/4</u>	
				REGULATORY AGENCY	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
				Site Location STATE: <u>WA/Freeman</u>	

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ <u>Low level Vol By \$760</u>	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol					Other			
					DATE	TIME	DATE	TIME																	
1	<u>Lashaw - GW - 120519</u>		<u>WTG</u>		<u>12/5/19</u>	<u>1400</u>			<u>3</u>																
2	<u>Lashaw Ag - GW - 120519</u>		<u>WTG</u>		<u>12/5/19</u>	<u>1430</u>			<u>3</u>																<u>No Samples</u>
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

WO#: 10501571

 10501571

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<u>K-L Sge/Jacobs</u>	<u>12/5/19</u>	<u>1600</u>	<u>WA PACE</u>	<u>12/6/19</u>	<u>850</u>	<u>0.3</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>

Page 19 of 20

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Karla Savage</u>	DATE Signed (MM/DD/YY): <u>12/05/19</u>				
SIGNATURE of SAMPLER: <u>K-L Sge</u>					

Sample Condition Upon Receipt	Client Name: <u>CH2M</u>	Project #: WO#: 10501571
	Courier: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial <input type="checkbox"/> See Exceptions	PM: JMG Due Date: 12/20/19 CLIENT: UPRR_Jacobs
Tracking Number: <u>7475 9400 (8360/8370)</u>		

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.3, 0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>0.4, 0.3</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: lu 12-6-19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> , Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# _____
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>218302/236659</u>

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ JENNIFER GROSS Date: 120919

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

December 13, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

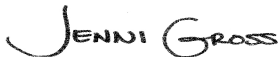
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501572

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501572001	Lang-GW-120519	Water	12/05/19 15:30	12/06/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501572001	Lang-GW-120519	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649118

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3491524)
 - 1,2,3-Trichlorobenzene
- MSD (Lab ID: 3491525)
 - Isopropylbenzene (Cumene)

Additional Comments:

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3491522)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3491523)
 - 1,2-Dichloroethene (Total)
- Lang-GW-120519 (Lab ID: 10501572001)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3491524)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3491525)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3491522)
 - Dichlorofluoromethane
- LCS (Lab ID: 3491523)
 - Dichlorofluoromethane
- Lang-GW-120519 (Lab ID: 10501572001)
 - Dichlorofluoromethane
- MS (Lab ID: 3491524)
 - Dichlorofluoromethane
- MSD (Lab ID: 3491525)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Sample: Lang-GW-120519 **Lab ID: 10501572001** Collected: 12/05/19 15:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 04:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 04:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 04:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 04:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 04:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 04:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 04:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 04:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 04:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 04:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 04:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 04:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 04:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 04:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 04:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:22	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 04:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 04:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 04:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 04:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 04:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 04:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 04:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 04:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 04:22	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 04:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 04:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 04:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 04:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 04:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 04:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 04:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 04:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 04:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 04:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 04:22	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 04:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 04:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 04:22	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Sample: Lang-GW-120519 **Lab ID: 10501572001** Collected: 12/05/19 15:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 04:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 04:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 04:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 04:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 04:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 04:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 04:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 04:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 04:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 04:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 04:22	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 04:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 04:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 04:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 04:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 04:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 04:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 04:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 04:22	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 04:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 04:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 04:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 04:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 04:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 04:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 04:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 04:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 04:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 04:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 04:22	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 04:22	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 04:22	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

QC Batch: 649118

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10501572001

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501572001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/10/19 22:47	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/10/19 22:47	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/10/19 22:47	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/10/19 22:47	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/10/19 22:47	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/10/19 22:47	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/10/19 22:47	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/10/19 22:47	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/10/19 22:47	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/10/19 22:47	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/10/19 22:47	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/10/19 22:47	
Acetone	ug/L	<9.2	20.0	9.2	12/10/19 22:47	
Acrolein	ug/L	<3.2	10.0	3.2	12/10/19 22:47	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/10/19 22:47	
Benzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/10/19 22:47	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/10/19 22:47	
Bromoform	ug/L	<0.80	4.0	0.80	12/10/19 22:47	
Bromomethane	ug/L	<1.8	4.0	1.8	12/10/19 22:47	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/10/19 22:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501572001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Chloroethane	ug/L	<0.49	1.0	0.49	12/10/19 22:47	
Chloroform	ug/L	<0.45	4.0	0.45	12/10/19 22:47	
Chloromethane	ug/L	<0.48	4.0	0.48	12/10/19 22:47	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/10/19 22:47	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/10/19 22:47	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/10/19 22:47	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/10/19 22:47	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/10/19 22:47	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/10/19 22:47	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Naphthalene	ug/L	<0.48	1.0	0.48	12/10/19 22:47	
o-Xylene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
Styrene	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/10/19 22:47	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/10/19 22:47	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/10/19 22:47	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/10/19 22:47	
Toluene	ug/L	<0.083	0.50	0.083	12/10/19 22:47	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/10/19 22:47	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/10/19 22:47	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/10/19 22:47	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/10/19 22:47	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/10/19 22:47	
1,2-Dichloroethane-d4 (S)	%	96	75-136		12/10/19 22:47	
4-Bromofluorobenzene (S)	%	96	75-125		12/10/19 22:47	
Toluene-d8 (S)	%	113	75-125		12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501572

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.7	97	68-141	
1,1,1-Trichloroethane	ug/L	10	9.7	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	8.5	85	73-125	
1,1,2-Trichloroethane	ug/L	10	10.2	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	11.2	112	69-132	
1,1-Dichloroethane	ug/L	10	9.0	90	73-125	
1,1-Dichloroethene	ug/L	10	10.2	102	71-126	
1,1-Dichloropropene	ug/L	10	9.5	95	73-126	
1,2,3-Trichlorobenzene	ug/L	10	11.3	113	72-126	
1,2,3-Trichloropropane	ug/L	10	8.9	89	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.6	116	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	22.4	90	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	9.2	92	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	74-125	N2
1,2-Dichloropropane	ug/L	10	8.2	82	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.2	112	75-127	
1,3-Dichlorobenzene	ug/L	10	11.3	113	75-126	
1,3-Dichloropropane	ug/L	10	9.8	98	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	226	113	72-129	
2,2,4-Trimethylpentane	ug/L	10	8.6	86	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	34.8	70	59-144	
2-Chlorotoluene	ug/L	10	10.9	109	75-127	
2-Hexanone	ug/L	50	43.4	87	73-134	
4-Chlorotoluene	ug/L	10	11.1	111	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	43.8	88	62-141	
Acetone	ug/L	50	36.4	73	60-137	
Acrolein	ug/L	100	67.6	68	60-141	
Acrylonitrile	ug/L	100	82.0	82	75-129	
Benzene	ug/L	10	9.2	92	73-125	
Bromobenzene	ug/L	10	10.6	106	73-125	
Bromochloromethane	ug/L	10	9.9	99	75-135	
Bromodichloromethane	ug/L	10	7.7	77	75-125	
Bromoform	ug/L	10	9.6	96	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.8	98	47-137	
Carbon tetrachloride	ug/L	10	10.3	103	75-125	
Chlorobenzene	ug/L	10	10.6	106	75-125	
Chloroethane	ug/L	10	7.5	75	63-136	
Chloroform	ug/L	10	9.9	99	73-128	
Chloromethane	ug/L	10	8.9	89	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.5	95	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.6	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.2	92	75-125	
Dibromomethane	ug/L	10	10.3	103	75-125	
Dichlorodifluoromethane	ug/L	10	10.4	104	63-132	
Dichlorofluoromethane	ug/L	10	9.5	95	68-127	
Diisopropyl ether	ug/L	10	7.7	77	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.9	79	75-125	
Ethylbenzene	ug/L	10	11.2	112	75-125	
Hexachloro-1,3-butadiene	ug/L	10	11.6	116	72-134	
Isopropylbenzene (Cumene)	ug/L	10	11.7	117	75-125	
m&p-Xylene	ug/L	20	23.9	119	75-126	
Methyl-tert-butyl ether	ug/L	10	8.2	82	75-125	
Methylene Chloride	ug/L	10	10.0	100	70-125	
n-Butylbenzene	ug/L	10	11.0	110	75-126	
n-Propylbenzene	ug/L	10	11.0	110	73-127	
Naphthalene	ug/L	10	11.1	111	63-128	
o-Xylene	ug/L	10	12.4	124	75-128	
p-Isopropyltoluene	ug/L	10	12.3	123	75-125	
sec-Butylbenzene	ug/L	10	11.9	119	75-126	
Styrene	ug/L	10	10.8	108	75-125	
tert-Amylmethyl ether	ug/L	10	7.9	79	75-125	
tert-Butyl Alcohol	ug/L	100	93.8	94	75-130	
tert-Butylbenzene	ug/L	10	11.9	119	75-131	
Tetrachloroethene	ug/L	10	11.6	116	74-125	
Tetrahydrofuran	ug/L	100	93.8	94	64-138	
Toluene	ug/L	10	11.0	110	74-125	
trans-1,2-Dichloroethene	ug/L	10	9.8	98	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	19.1	76	60-127	
Trichloroethene	ug/L	10	10.5	105	75-127	
Trichlorofluoromethane	ug/L	10	10.9	109	72-133	
Vinyl acetate	ug/L	10	7.5J	75	61-129	
Vinyl chloride	ug/L	10	10	100	75-128	
Xylene (Total)	ug/L	30	36.3	121	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			106	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491524 3491525

Parameter	Units	MS 10501574001		MSD 3491525		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.2	105	102	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	10.1	10.8	101	108	74-136	7	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	10.3	9.1	103	91	66-134	12	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.1	9.9	101	99	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3491524		3491525								
Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	11.8	12.3	118	123	65-146	4	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	9.6	9.2	96	92	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	10.7	10.4	107	104	66-139	3	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.9	10.1	99	101	67-134	2	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	13.0	12.2	130	122	67-129	6	30	M1
1,2,3-Trichloropropane	ug/L	<0.26	10	10	10.9	10.2	109	102	69-128	6	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	13.3	13.2	133	132	65-140	1	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.4	12.8	124	128	71-133	3	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	26.5	26.1	106	105	54-138	1	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	10.4	10.1	104	101	68-125	3	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.5	12.3	115	123	74-136	7	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	9.2	9.4	92	94	68-125	2	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.2	19.7	96	98	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.6	9.1	96	91	67-125	6	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.1	12.9	121	129	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	11.9	12.5	119	125	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	9.7	102	97	71-125	5	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.3	11.9	113	119	74-126	6	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	228	201	114	100	68-125	13	30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	10.6	8.9	106	89	54-129	17	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	9.8	10	98	100	69-139	1	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	38.3	37.4	77	75	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.7	12.3	117	123	75-134	5	30	
2-Hexanone	ug/L	<0.88	50	50	52.4	47.7	105	95	58-137	9	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.9	12.2	119	122	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	52.3	49.1	105	98	60-129	6	30	
Acetone	ug/L	<9.2	50	50	37.1	42.0	74	84	62-132	12	30	
Acrolein	ug/L	<3.2	100	100	95.4	93.6	95	94	30-150	2	30	
Acrylonitrile	ug/L	<0.91	100	100	87.2	84.7	87	85	68-125	3	30	
Benzene	ug/L	<0.10	10	10	9.7	9.5	97	95	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	11.2	11.1	112	111	73-126	0	30	
Bromochloromethane	ug/L	<0.27	10	10	8.9	9.6	89	96	66-143	7	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.5	9.3	95	93	74-125	2	30	
Bromoform	ug/L	<0.80	10	10	10.4	10.2	104	102	64-134	2	30	
Bromomethane	ug/L	<1.8	10	10	7.4	7.1	74	71	30-150	4	30	
Carbon disulfide	ug/L	<0.19	10	10	10.2	9.7	102	97	43-147	5	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.9	11.7	109	117	71-143	7	30	
Chlorobenzene	ug/L	<0.17	10	10	10.6	10.9	106	109	75-125	3	30	
Chloroethane	ug/L	<0.49	10	10	7.8	7.5	78	75	75-129	3	30	
Chloroform	ug/L	<0.45	10	10	8.8	8.8	88	88	66-132	1	30	
Chloromethane	ug/L	<0.48	10	10	9.4	9.0	94	90	53-137	4	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	9.0	9.3	90	93	67-133	2	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	11.1	9.2	111	92	66-125	19	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Parameter	Units	10501574001		3491524		3491525		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibromochloromethane	ug/L	<0.12	10	10	9.3	9.2	93	92	62-132	1	30			
Dibromomethane	ug/L	<0.16	10	10	9.5	9.6	95	96	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	10	10	10.8	10.8	108	108	71-142	0	30			
Dichlorofluoromethane	ug/L	<0.14	10	10	9.8	9.7	98	97	70-131	2	30			
Diisopropyl ether	ug/L	<0.13	10	10	8.4	8.2	84	82	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	8.3	8.0	83	80	66-128	3	30			
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.8	112	118	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	13.4	11.8	134	118	68-143	13	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.6	13.1	116	131	74-130	11	30 M1			
m&p-Xylene	ug/L	<0.31	20	20	23.7	25.3	118	126	69-132	7	30			
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.8	8.7	88	87	65-131	1	30			
Methylene Chloride	ug/L	<0.98	10	10	9.6	9.7	96	97	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	10	10	12.2	12.0	122	120	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	10	10	11.9	12.7	119	127	67-138	7	30			
Naphthalene	ug/L	<0.48	10	10	12.4	12.5	124	125	60-130	1	30			
o-Xylene	ug/L	<0.16	10	10	12.1	12.9	121	129	69-131	7	30			
p-Isopropyltoluene	ug/L	<0.15	10	10	13.2	13.3	132	133	72-133	0	30			
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.3	131	133	73-134	1	30			
Styrene	ug/L	<0.19	10	10	10.1	10.8	101	108	72-125	7	30			
tert-Amylmethyl ether	ug/L	<0.11	10	10	8.7	8.2	87	82	67-125	6	30			
tert-Butyl Alcohol	ug/L	<1.2	100	100	88.3	97.3	88	97	64-137	10	30			
tert-Butylbenzene	ug/L	<0.15	10	10	12.7	13.4	127	134	70-143	6	30			
Tetrachloroethene	ug/L	<0.17	10	10	12.5	12.6	125	126	72-129	0	30			
Tetrahydrofuran	ug/L	<2.2	100	100	92.4	102	92	102	66-128	10	30			
Toluene	ug/L	<0.083	10	10	11.3	11.2	113	112	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	10.2	10.4	102	104	62-137	2	30			
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	9.8	9.8	98	98	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	23.7	21.2	95	85	45-128	11	30			
Trichloroethene	ug/L	<0.15	10	10	10.8	10.5	108	105	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	10	10	11.2	11.4	112	114	75-139	1	30			
Vinyl acetate	ug/L	<1.1	10	10	7.8J	7.7J	78	77	51-135		30			
Vinyl chloride	ug/L	<0.092	10	10	10.3	9.8	103	98	68-146	5	30			
Xylene (Total)	ug/L	<0.31	30	30	35.7	38.2	119	127	67-137	7	30			
1,2-Dichloroethane-d4 (S)	%						100	100	75-136					
4-Bromofluorobenzene (S)	%						99	96	75-125					
Toluene-d8 (S)	%						107	105	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501572

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501572

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501572001	Lang-GW-120519	EPA 8260B	649118		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
2146347

Section A

Required Client Information:

Company: **Jacobs**
Address: **999 W. Riverside St Ste 500
Spokane WA 99201**
Email To:
Phone:
Requested Due Date/TAT: **10 Day**

Section B

Required Project Information:

Report To: **Mark Oschner, Brad Ostapowicz**
Copy To: **Steve Demus, Jon Espinoza**
Purchase Order No.: **PEDD# 1497**
Project Name: **Freeman WA Grain Handling Facility**
Project Number: **1497**

Section C

Invoice Information:


Attention: **Anne Walsh**
Company Name: **UPRR**
Address: **1400 W 52nd, Denver CO 80221**
Pace Quote Reference:
Pace Project Manager: **Jennifer Cross**
Pace Profile #:
3644714

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

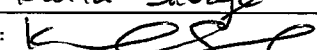
Site Location
STATE: **WA/Freeman**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Low level VOCs by 8260	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol					Other			
					DATE	TIME	DATE	TIME																	
1	Lang - GW - 120519		WT G		12/5/19	1530			1	3															
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									


WO#: 10501572

10501572

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	KESJ / Jacobs	12/5/19	1600	M PACE	12/6/19	850	0.3	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: **Kaita Savage**
SIGNATURE of SAMPLER: 
DATE Signed (MM/DD/YY): **12/05/19**

Temp in °C
Received on ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** CH2M **Project #:** **WO# : 10501572**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9400 (8360/8370)

PM: JMG **Due Date:** 12/20/19
CLIENT: UPRR_Jacobs

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.3 , 0.2</u> °C	Average Corrected Temp
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank : <u>0.4 , 0.3</u> °C	(no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** Jan 12-6-19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>218302 / 236659</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 12/09/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: RNC (2) Page 19 of 19

December 13, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

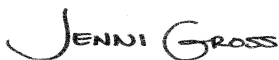
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501573

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501573001	Asher-GW-120519	Water	12/05/19 11:00	12/06/19 08:50

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501573001	Asher-GW-120519	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649118

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3491524)
 - 1,2,3-Trichlorobenzene
- MSD (Lab ID: 3491525)
 - Isopropylbenzene (Cumene)

Additional Comments:

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Asher-GW-120519 (Lab ID: 10501573001)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 13, 2019

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3491522)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3491523)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3491524)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3491525)
 - 1,2-Dichloroethene (Total)

- Asher-GW-120519 (Lab ID: 10501573001)
 - Dichlorofluoromethane
- BLANK (Lab ID: 3491522)
 - Dichlorofluoromethane
- LCS (Lab ID: 3491523)
 - Dichlorofluoromethane
- MS (Lab ID: 3491524)
 - Dichlorofluoromethane
- MSD (Lab ID: 3491525)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Sample: Asher-GW-120519 **Lab ID: 10501573001** Collected: 12/05/19 11:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 04:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 04:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 04:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 04:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 04:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 04:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 04:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 04:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 04:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 04:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 04:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 04:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 04:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 04:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 04:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 04:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:46	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 04:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 04:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 04:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 04:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 04:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 04:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 04:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 04:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 04:46	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 04:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 04:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 04:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 04:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 04:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 04:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 04:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 04:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 04:46	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 04:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 04:46	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 04:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 04:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 04:46	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Sample: Asher-GW-120519 **Lab ID: 10501573001** Collected: 12/05/19 11:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 04:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 04:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 04:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 04:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 04:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 04:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 04:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 04:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 04:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 04:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 04:46	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 04:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 04:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 04:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 04:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 04:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 04:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 04:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 04:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 04:46	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 04:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 04:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 04:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 04:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 04:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 04:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 04:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 04:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 04:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 04:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 04:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 04:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 04:46	17060-07-0	
Toluene-d8 (S)	111	%	75-125		1		12/11/19 04:46	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 04:46	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

QC Batch: 649118

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10501573001

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501573001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/10/19 22:47	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/10/19 22:47	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/10/19 22:47	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/10/19 22:47	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/10/19 22:47	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/10/19 22:47	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/10/19 22:47	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/10/19 22:47	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/10/19 22:47	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/10/19 22:47	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/10/19 22:47	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/10/19 22:47	
Acetone	ug/L	<9.2	20.0	9.2	12/10/19 22:47	
Acrolein	ug/L	<3.2	10.0	3.2	12/10/19 22:47	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/10/19 22:47	
Benzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/10/19 22:47	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/10/19 22:47	
Bromoform	ug/L	<0.80	4.0	0.80	12/10/19 22:47	
Bromomethane	ug/L	<1.8	4.0	1.8	12/10/19 22:47	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501573

METHOD BLANK: 3491522 Matrix: Water
Associated Lab Samples: 10501573001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Chloroethane	ug/L	<0.49	1.0	0.49	12/10/19 22:47	
Chloroform	ug/L	<0.45	4.0	0.45	12/10/19 22:47	
Chloromethane	ug/L	<0.48	4.0	0.48	12/10/19 22:47	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/10/19 22:47	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/10/19 22:47	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/10/19 22:47	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/10/19 22:47	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/10/19 22:47	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/10/19 22:47	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Naphthalene	ug/L	<0.48	1.0	0.48	12/10/19 22:47	
o-Xylene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
Styrene	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/10/19 22:47	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/10/19 22:47	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/10/19 22:47	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/10/19 22:47	
Toluene	ug/L	<0.083	0.50	0.083	12/10/19 22:47	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/10/19 22:47	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/10/19 22:47	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/10/19 22:47	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/10/19 22:47	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/10/19 22:47	
1,2-Dichloroethane-d4 (S)	%	96	75-136		12/10/19 22:47	
4-Bromofluorobenzene (S)	%	96	75-125		12/10/19 22:47	
Toluene-d8 (S)	%	113	75-125		12/10/19 22:47	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.7	97	68-141	
1,1,1-Trichloroethane	ug/L	10	9.7	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	8.5	85	73-125	
1,1,2-Trichloroethane	ug/L	10	10.2	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	11.2	112	69-132	
1,1-Dichloroethane	ug/L	10	9.0	90	73-125	
1,1-Dichloroethene	ug/L	10	10.2	102	71-126	
1,1-Dichloropropene	ug/L	10	9.5	95	73-126	
1,2,3-Trichlorobenzene	ug/L	10	11.3	113	72-126	
1,2,3-Trichloropropane	ug/L	10	8.9	89	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.6	116	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	22.4	90	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	9.2	92	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	74-125	N2
1,2-Dichloropropane	ug/L	10	8.2	82	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.2	112	75-127	
1,3-Dichlorobenzene	ug/L	10	11.3	113	75-126	
1,3-Dichloropropane	ug/L	10	9.8	98	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	226	113	72-129	
2,2,4-Trimethylpentane	ug/L	10	8.6	86	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	34.8	70	59-144	
2-Chlorotoluene	ug/L	10	10.9	109	75-127	
2-Hexanone	ug/L	50	43.4	87	73-134	
4-Chlorotoluene	ug/L	10	11.1	111	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	43.8	88	62-141	
Acetone	ug/L	50	36.4	73	60-137	
Acrolein	ug/L	100	67.6	68	60-141	
Acrylonitrile	ug/L	100	82.0	82	75-129	
Benzene	ug/L	10	9.2	92	73-125	
Bromobenzene	ug/L	10	10.6	106	73-125	
Bromochloromethane	ug/L	10	9.9	99	75-135	
Bromodichloromethane	ug/L	10	7.7	77	75-125	
Bromoform	ug/L	10	9.6	96	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.8	98	47-137	
Carbon tetrachloride	ug/L	10	10.3	103	75-125	
Chlorobenzene	ug/L	10	10.6	106	75-125	
Chloroethane	ug/L	10	7.5	75	63-136	
Chloroform	ug/L	10	9.9	99	73-128	
Chloromethane	ug/L	10	8.9	89	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.5	95	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.6	96	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.2	92	75-125	
Dibromomethane	ug/L	10	10.3	103	75-125	
Dichlorodifluoromethane	ug/L	10	10.4	104	63-132	
Dichlorofluoromethane	ug/L	10	9.5	95	68-127	
Diisopropyl ether	ug/L	10	7.7	77	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.9	79	75-125	
Ethylbenzene	ug/L	10	11.2	112	75-125	
Hexachloro-1,3-butadiene	ug/L	10	11.6	116	72-134	
Isopropylbenzene (Cumene)	ug/L	10	11.7	117	75-125	
m&p-Xylene	ug/L	20	23.9	119	75-126	
Methyl-tert-butyl ether	ug/L	10	8.2	82	75-125	
Methylene Chloride	ug/L	10	10.0	100	70-125	
n-Butylbenzene	ug/L	10	11.0	110	75-126	
n-Propylbenzene	ug/L	10	11.0	110	73-127	
Naphthalene	ug/L	10	11.1	111	63-128	
o-Xylene	ug/L	10	12.4	124	75-128	
p-Isopropyltoluene	ug/L	10	12.3	123	75-125	
sec-Butylbenzene	ug/L	10	11.9	119	75-126	
Styrene	ug/L	10	10.8	108	75-125	
tert-Amylmethyl ether	ug/L	10	7.9	79	75-125	
tert-Butyl Alcohol	ug/L	100	93.8	94	75-130	
tert-Butylbenzene	ug/L	10	11.9	119	75-131	
Tetrachloroethene	ug/L	10	11.6	116	74-125	
Tetrahydrofuran	ug/L	100	93.8	94	64-138	
Toluene	ug/L	10	11.0	110	74-125	
trans-1,2-Dichloroethene	ug/L	10	9.8	98	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	19.1	76	60-127	
Trichloroethene	ug/L	10	10.5	105	75-127	
Trichlorofluoromethane	ug/L	10	10.9	109	72-133	
Vinyl acetate	ug/L	10	7.5J	75	61-129	
Vinyl chloride	ug/L	10	10	100	75-128	
Xylene (Total)	ug/L	30	36.3	121	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			106	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491524 3491525

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501574001	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.2	105	102	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	10.1	10.8	101	108	74-136	7	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	10.3	9.1	103	91	66-134	12	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.1	9.9	101	99	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3491524		3491525							
Parameter	Units	10501574001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	11.8	12.3	118	123	65-146	4	30
1,1-Dichloroethane	ug/L	<0.17	10	10	9.6	9.2	96	92	68-132	4	30
1,1-Dichloroethene	ug/L	<0.16	10	10	10.7	10.4	107	104	66-139	3	30
1,1-Dichloropropene	ug/L	<0.20	10	10	9.9	10.1	99	101	67-134	2	30
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	13.0	12.2	130	122	67-129	6	30 M1
1,2,3-Trichloropropane	ug/L	<0.26	10	10	10.9	10.2	109	102	69-128	6	30
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	13.3	13.2	133	132	65-140	1	30
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.4	12.8	124	128	71-133	3	30
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	26.5	26.1	106	105	54-138	1	30
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	10.4	10.1	104	101	68-125	3	30
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.5	12.3	115	123	74-136	7	30
1,2-Dichloroethane	ug/L	<0.22	10	10	9.2	9.4	92	94	68-125	2	30
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.2	19.7	96	98	71-126	2	30 N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.6	9.1	96	91	67-125	6	30
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.1	12.9	121	129	68-137	7	30
1,3-Dichlorobenzene	ug/L	<0.16	10	10	11.9	12.5	119	125	75-131	5	30
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	9.7	102	97	71-125	5	30
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.3	11.9	113	119	74-126	6	30
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	228	201	114	100	68-125	13	30
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	10.6	8.9	106	89	54-129	17	30
2,2-Dichloropropane	ug/L	<0.17	10	10	9.8	10	98	100	69-139	1	30
2-Butanone (MEK)	ug/L	<0.99	50	50	38.3	37.4	77	75	54-144	2	30
2-Chlorotoluene	ug/L	<0.16	10	10	11.7	12.3	117	123	75-134	5	30
2-Hexanone	ug/L	<0.88	50	50	52.4	47.7	105	95	58-137	9	30
4-Chlorotoluene	ug/L	<0.13	10	10	11.9	12.2	119	122	72-133	3	30
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	52.3	49.1	105	98	60-129	6	30
Acetone	ug/L	<9.2	50	50	37.1	42.0	74	84	62-132	12	30
Acrolein	ug/L	<3.2	100	100	95.4	93.6	95	94	30-150	2	30
Acrylonitrile	ug/L	<0.91	100	100	87.2	84.7	87	85	68-125	3	30
Benzene	ug/L	<0.10	10	10	9.7	9.5	97	95	68-125	2	30
Bromobenzene	ug/L	<0.21	10	10	11.2	11.1	112	111	73-126	0	30
Bromochloromethane	ug/L	<0.27	10	10	8.9	9.6	89	96	66-143	7	30
Bromodichloromethane	ug/L	<0.22	10	10	9.5	9.3	95	93	74-125	2	30
Bromoform	ug/L	<0.80	10	10	10.4	10.2	104	102	64-134	2	30
Bromomethane	ug/L	<1.8	10	10	7.4	7.1	74	71	30-150	4	30
Carbon disulfide	ug/L	<0.19	10	10	10.2	9.7	102	97	43-147	5	30
Carbon tetrachloride	ug/L	<0.19	10	10	10.9	11.7	109	117	71-143	7	30
Chlorobenzene	ug/L	<0.17	10	10	10.6	10.9	106	109	75-125	3	30
Chloroethane	ug/L	<0.49	10	10	7.8	7.5	78	75	75-129	3	30
Chloroform	ug/L	<0.45	10	10	8.8	8.8	88	88	66-132	1	30
Chloromethane	ug/L	<0.48	10	10	9.4	9.0	94	90	53-137	4	30
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	9.0	9.3	90	93	67-133	2	30
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	11.1	9.2	111	92	66-125	19	30

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Parameter	Units	10501574001		3491524		3491525		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.3	9.2	93	92	62-132	1	30			
Dibromomethane	ug/L	<0.16	10	10	9.5	9.6	95	96	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	10	10	10.8	10.8	108	108	71-142	0	30			
Dichlorofluoromethane	ug/L	<0.14	10	10	9.8	9.7	98	97	70-131	2	30			
Diisopropyl ether	ug/L	<0.13	10	10	8.4	8.2	84	82	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	8.3	8.0	83	80	66-128	3	30			
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.8	112	118	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	13.4	11.8	134	118	68-143	13	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.6	13.1	116	131	74-130	11	30 M1			
m&p-Xylene	ug/L	<0.31	20	20	23.7	25.3	118	126	69-132	7	30			
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.8	8.7	88	87	65-131	1	30			
Methylene Chloride	ug/L	<0.98	10	10	9.6	9.7	96	97	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	10	10	12.2	12.0	122	120	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	10	10	11.9	12.7	119	127	67-138	7	30			
Naphthalene	ug/L	<0.48	10	10	12.4	12.5	124	125	60-130	1	30			
o-Xylene	ug/L	<0.16	10	10	12.1	12.9	121	129	69-131	7	30			
p-Isopropyltoluene	ug/L	<0.15	10	10	13.2	13.3	132	133	72-133	0	30			
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.3	131	133	73-134	1	30			
Styrene	ug/L	<0.19	10	10	10.1	10.8	101	108	72-125	7	30			
tert-Amylmethyl ether	ug/L	<0.11	10	10	8.7	8.2	87	82	67-125	6	30			
tert-Butyl Alcohol	ug/L	<1.2	100	100	88.3	97.3	88	97	64-137	10	30			
tert-Butylbenzene	ug/L	<0.15	10	10	12.7	13.4	127	134	70-143	6	30			
Tetrachloroethene	ug/L	<0.17	10	10	12.5	12.6	125	126	72-129	0	30			
Tetrahydrofuran	ug/L	<2.2	100	100	92.4	102	92	102	66-128	10	30			
Toluene	ug/L	<0.083	10	10	11.3	11.2	113	112	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	10.2	10.4	102	104	62-137	2	30			
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	9.8	9.8	98	98	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	23.7	21.2	95	85	45-128	11	30			
Trichloroethene	ug/L	<0.15	10	10	10.8	10.5	108	105	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	10	10	11.2	11.4	112	114	75-139	1	30			
Vinyl acetate	ug/L	<1.1	10	10	7.8J	7.7J	78	77	51-135		30			
Vinyl chloride	ug/L	<0.092	10	10	10.3	9.8	103	98	68-146	5	30			
Xylene (Total)	ug/L	<0.31	30	30	35.7	38.2	119	127	67-137	7	30			
1,2-Dichloroethane-d4 (S)	%						100	100	75-136					
4-Bromofluorobenzene (S)	%						99	96	75-125					
Toluene-d8 (S)	%						107	105	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501573001	Asher-GW-120519	EPA 8260B	649118		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:			Section B Required Project Information:			Section C Invoice Information:		
Company: CH2M Hill			Report To: Mark Ochsner, Brad Ostapkowicz			Attention: Anne Walsh		
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201			Copy To: Steve Demus, Lindsey Baumann			Company: UPRR		
Email:			Copy To: David Hodson, UPRR-Sysdat@ghd.com			Address: 1400 W. 52nd Ave, Denver, CO 80221		
Phone:			Purchase Order # PEDD# 1497			Pace Quote: Contract# 758938		
Requested Due Date: 10 Day Standard			Project Name: Freeman WA-Grain Handling Facility			Pace Project Manager: Jennifer Gross		
			Project #: 1497			Pace Profile #: 36447 / 4		

Page :	Of
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ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	CODE DW WT WW P SL OL WP AR OT TS	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)							Regulatory Agency	State / Location WA / Freeman												
				DATE	TIME			Preservatives	Analyses Test	Y																		
1	Asher - Gw - 120519				12/15/19	1100	3							X												001		
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

WO#: 10501573

10501573

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Short hold analyses are in bold	<i>K S Saraya / Janice</i>	12/15/19	1600	<i>M PACE</i>	12/6/19	850	<i>0.3</i>	Y	Y	Y
*Field filtered by client										

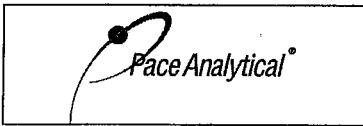
SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: *Kala Saraya*

SIGNATURE of SAMPLER: *KP Saraya*

DATE Signed: 12/15/19

TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -

WO# : 10501573

PM: JMG Due Date: 12/20/19

CLIENT: UPRR_Jacobs

Sample Condition Upon Receipt

Client Name: CH2M Project #: _____

Courier: Fed Ex UPS USPS Client
 Pace SpeeDee Commercial See Exceptions

Tracking Number: 7475 9400 (8360/8370)

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.3, 0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>0.4, 0.3</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: lu 12-6-19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No
 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA</u> Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>218302 / 236659</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review:

JENNI GROSS

Date: 120919

Note: Whenever there is a discrepancy affect compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: RNC Page 10 of 10

December 18, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

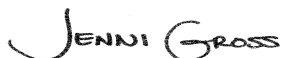
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501574001	Asher-GW-120519	Water	12/05/19 11:00	12/06/19 08:50
10501574002	FD1-GW-120519	Water	12/05/19 08:00	12/06/19 08:50
10501574003	Stark-GW-120519	Water	12/05/19 12:30	12/06/19 08:50
10501574004	Lashaw-GW-120519	Water	12/05/19 14:00	12/06/19 08:50
10501574005	Lang-GW-120519	Water	12/05/19 15:30	12/06/19 08:50
10501574006	TB1-120519	Water	12/05/19 07:00	12/06/19 08:50
10501574007	TB2-120519	Water	12/05/19 07:30	12/06/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501574001	Asher-GW-120519	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501574002	FD1-GW-120519	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501574003	Stark-GW-120519	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		10501574004	Lashaw-GW-120519	RSK-175	DAH
EPA 6010D	DM			16	PASI-M
EPA 7470A	LMW			1	PASI-M
SM 2320B	SH4			1	PASI-M
SM 2540C	EPT			1	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501574005	Lang-GW-120519	RSK-175	DAH	3	PAN
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501574006	TB1-120519	EPA 8260B	DS2	83	PASI-M
10501574007	TB2-120519	EPA 8260B	DS2	83	PASI-M

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501574001	Asher-GW-120519					
EPA 6010D	Barium, Dissolved	65.2	ug/L	10.0	12/11/19 12:31	
EPA 6010D	Beryllium, Dissolved	0.24J	ug/L	5.0	12/11/19 12:31	
EPA 6010D	Chromium, Dissolved	0.85J	ug/L	10.0	12/11/19 12:31	
EPA 6010D	Copper, Dissolved	43.7	ug/L	10.0	12/11/19 12:31	
EPA 6010D	Vanadium, Dissolved	10.0J	ug/L	15.0	12/11/19 12:31	
EPA 6010D	Zinc, Dissolved	25.5	ug/L	20.0	12/11/19 12:31	
SM 2320B	Alkalinity, Total as CaCO3	212	mg/L	5.0	12/06/19 16:31	
SM 2540C	Total Dissolved Solids	335	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	6.1	mg/L	1.2	12/06/19 17:48	
EPA 300.0	Nitrate as N	7.5	mg/L	0.10	12/06/19 17:48	M1
EPA 300.0	Sulfate	18.2	mg/L	1.2	12/06/19 17:48	M1
EPA 353.2	Nitrogen, NO2 plus NO3	7.0	mg/L	1.0	12/12/19 16:12	
SM 5310C	Total Organic Carbon	0.68J	mg/L	1.0	12/12/19 18:14	
10501574002	FD1-GW-120519					
EPA 6010D	Barium, Dissolved	32.7	ug/L	10.0	12/11/19 12:40	
EPA 6010D	Beryllium, Dissolved	0.27J	ug/L	5.0	12/11/19 12:40	
EPA 6010D	Cadmium, Dissolved	0.52J	ug/L	3.0	12/11/19 12:40	
EPA 6010D	Cobalt, Dissolved	0.80J	ug/L	10.0	12/11/19 12:40	
EPA 6010D	Copper, Dissolved	76.0	ug/L	10.0	12/11/19 12:40	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	12/11/19 12:40	
EPA 6010D	Vanadium, Dissolved	6.2J	ug/L	15.0	12/11/19 12:40	
EPA 6010D	Zinc, Dissolved	60.4	ug/L	20.0	12/11/19 12:40	
SM 2320B	Alkalinity, Total as CaCO3	113	mg/L	5.0	12/06/19 17:00	
SM 2540C	Total Dissolved Solids	259	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	1.8	mg/L	1.2	12/10/19 16:31	
EPA 300.0	Nitrate as N	15.0	mg/L	0.50	12/07/19 09:30	
EPA 300.0	Sulfate	13.1	mg/L	1.2	12/10/19 16:31	
EPA 353.2	Nitrogen, NO2 plus NO3	14.2	mg/L	2.0	12/12/19 17:10	
10501574003	Stark-GW-120519					
EPA 6010D	Barium, Dissolved	31.6	ug/L	10.0	12/11/19 12:41	
EPA 6010D	Copper, Dissolved	65.6	ug/L	10.0	12/11/19 12:41	
EPA 6010D	Vanadium, Dissolved	6.0J	ug/L	15.0	12/11/19 12:41	
EPA 6010D	Zinc, Dissolved	58.8	ug/L	20.0	12/11/19 12:41	
SM 2320B	Alkalinity, Total as CaCO3	110	mg/L	5.0	12/06/19 17:10	
SM 2540C	Total Dissolved Solids	264	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	1.7	mg/L	1.2	12/10/19 17:09	
EPA 300.0	Nitrate as N	15.2	mg/L	0.50	12/07/19 09:48	
EPA 300.0	Sulfate	12.5	mg/L	1.2	12/10/19 17:09	
EPA 353.2	Nitrogen, NO2 plus NO3	13.3	mg/L	1.0	12/12/19 17:13	
10501574004	Lashaw-GW-120519					
EPA 6010D	Barium, Dissolved	8.9J	ug/L	10.0	12/11/19 12:43	
EPA 6010D	Cadmium, Dissolved	0.30J	ug/L	3.0	12/11/19 12:43	
EPA 6010D	Copper, Dissolved	2.6J	ug/L	10.0	12/11/19 12:43	
EPA 6010D	Vanadium, Dissolved	11.3J	ug/L	15.0	12/11/19 12:43	
EPA 6010D	Zinc, Dissolved	107	ug/L	20.0	12/11/19 12:43	
SM 2320B	Alkalinity, Total as CaCO3	143	mg/L	5.0	12/06/19 17:19	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501574004	Lashaw-GW-120519					
SM 2540C	Total Dissolved Solids	191	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	2.2	mg/L	1.2	12/10/19 17:48	M1
EPA 300.0	Nitrate as N	3.2	mg/L	0.10	12/06/19 23:34	
EPA 300.0	Sulfate	7.4	mg/L	1.2	12/06/19 23:34	M1
EPA 353.2	Nitrogen, NO2 plus NO3	3.1	mg/L	0.50	12/12/19 17:15	
10501574005	Lang-GW-120519					
SM 2320B	Alkalinity, Total as CaCO3	199	mg/L	5.0	12/06/19 17:26	
SM 2540C	Total Dissolved Solids	254	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	2.2	mg/L	1.2	12/10/19 19:23	
EPA 300.0	Nitrate as N	0.50	mg/L	0.10	12/06/19 23:52	
EPA 300.0	Sulfate	2.4	mg/L	1.2	12/06/19 23:52	
EPA 353.2	Nitrogen, NO2 plus NO3	0.48	mg/L	0.10	12/12/19 16:35	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 1393798

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

R1: RPD value was outside control limits.

- MSD (Lab ID: R3480908-5)
- Methane

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

4 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

4 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

4 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649118

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3491524)
 - 1,2,3-Trichlorobenzene
- MSD (Lab ID: 3491525)
 - Isopropylbenzene (Cumene)

Additional Comments:

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Asher-GW-120519 (Lab ID: 10501574001)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 18, 2019

Analyte Comments:

QC Batch: 649118

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3491522)
 - 1,2-Dichloroethene (Total)
- FD1-GW-120519 (Lab ID: 10501574002)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3491523)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3491524)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3491525)
 - 1,2-Dichloroethene (Total)
- TB1-120519 (Lab ID: 10501574006)
 - 1,2-Dichloroethene (Total)
- TB2-120519 (Lab ID: 10501574007)
 - 1,2-Dichloroethene (Total)

- Asher-GW-120519 (Lab ID: 10501574001)
 - Dichlorofluoromethane
- BLANK (Lab ID: 3491522)
 - Dichlorofluoromethane
- FD1-GW-120519 (Lab ID: 10501574002)
 - Dichlorofluoromethane
- LCS (Lab ID: 3491523)
 - Dichlorofluoromethane
- MS (Lab ID: 3491524)
 - Dichlorofluoromethane
- MSD (Lab ID: 3491525)
 - Dichlorofluoromethane
- TB1-120519 (Lab ID: 10501574006)
 - Dichlorofluoromethane
- TB2-120519 (Lab ID: 10501574007)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 168004

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 761157)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 648958

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501574001,10501574004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3489037)
 - Nitrate as N
 - Sulfate
- MS (Lab ID: 3490873)
 - Chloride
 - Sulfate
- MSD (Lab ID: 3489038)
 - Nitrate as N
- MSD (Lab ID: 3490874)
 - Chloride
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Sample: Asher-GW-120519 Lab ID: 10501574001 Collected: 12/05/19 11:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/10/19 13:24	12/10/19 13:24	74-82-8	MH,R1
Ethane	<4.07	ug/L	13.0	4.07	1	12/10/19 13:24	12/10/19 13:24	74-84-0	MH
Ethene	<4.26	ug/L	13.0	4.26	1	12/10/19 13:24	12/10/19 13:24	74-85-1	MH
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 12:31	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 12:31	7440-38-2	
Barium, Dissolved	65.2	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 12:31	7440-39-3	
Beryllium, Dissolved	0.24J	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 12:31	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 12:31	7440-43-9	
Chromium, Dissolved	0.85J	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 12:31	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 12:31	7440-48-4	
Copper, Dissolved	43.7	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 12:31	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 12:31	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 12:31	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 12:31	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 12:31	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 12:31	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 12:31	7440-28-0	
Vanadium, Dissolved	10.0J	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 12:31	7440-62-2	
Zinc, Dissolved	25.5	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 12:31	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:04	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 01:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 01:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 01:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 01:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 01:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 01:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 01:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 01:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 01:10	87-61-6	M1
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 01:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 01:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 01:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 01:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 01:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 01:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 01:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 01:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 01:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 01:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 01:10	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: Asher-GW-120519 Lab ID: 10501574001 Collected: 12/05/19 11:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 01:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 01:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 01:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 01:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 01:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 01:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 01:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 01:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 01:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 01:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 01:10	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 01:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 01:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 01:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 01:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 01:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 01:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 01:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 01:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 01:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 01:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 01:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 01:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 01:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 01:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 01:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 01:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 01:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 01:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 01:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 01:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 01:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 01:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 01:10	98-82-8	M1
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 01:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 01:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 01:10	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 01:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 01:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 01:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 01:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 01:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 01:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 01:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 01:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 01:10	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Sample: Asher-GW-120519 **Lab ID: 10501574001** Collected: 12/05/19 11:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 01:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 01:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 01:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 01:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 01:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 01:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 01:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 01:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 01:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 01:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 01:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 01:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 01:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 01:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 01:10	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 01:10	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		12/11/19 01:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	212	mg/L	5.0	2.0	1		12/06/19 16:31		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	335	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/10/19 16:48	18496-25-8	M1
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	6.1	mg/L	1.2	0.12	1		12/06/19 17:48	16887-00-6	
Nitrate as N	7.5	mg/L	0.10	0.012	1		12/06/19 17:48	14797-55-8	M1
Sulfate	18.2	mg/L	1.2	0.28	1		12/06/19 17:48	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	7.0	mg/L	1.0	0.18	10		12/12/19 16:12		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:28		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.68J	mg/L	1.0	0.39	1		12/12/19 18:14	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: **FD1-GW-120519** Lab ID: **10501574002** Collected: 12/05/19 08:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/10/19 13:26	12/10/19 13:26	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/10/19 13:26	12/10/19 13:26	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/10/19 13:26	12/10/19 13:26	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 12:40	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 12:40	7440-38-2	
Barium, Dissolved	32.7	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 12:40	7440-39-3	
Beryllium, Dissolved	0.27J	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 12:40	7440-41-7	
Cadmium, Dissolved	0.52J	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 12:40	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 12:40	7440-47-3	
Cobalt, Dissolved	0.80J	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 12:40	7440-48-4	
Copper, Dissolved	76.0	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 12:40	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 12:40	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 12:40	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 12:40	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 12:40	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 12:40	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 12:40	7440-28-0	
Vanadium, Dissolved	6.2J	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 12:40	7440-62-2	
Zinc, Dissolved	60.4	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 12:40	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:11	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 05:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 05:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 05:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 05:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 05:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 05:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 05:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 05:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 05:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 05:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 05:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 05:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 05:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 05:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 05:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 05:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 05:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 05:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 05:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 05:10	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: FD1-GW-120519 **Lab ID: 10501574002** Collected: 12/05/19 08:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 05:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 05:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 05:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 05:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 05:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 05:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 05:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 05:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 05:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 05:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 05:10	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 05:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 05:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 05:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 05:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 05:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 05:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 05:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 05:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 05:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 05:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 05:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 05:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 05:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 05:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 05:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 05:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 05:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 05:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 05:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 05:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 05:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 05:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 05:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 05:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 05:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 05:10	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 05:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 05:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 05:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 05:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 05:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 05:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 05:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 05:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 05:10	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: FD1-GW-120519 **Lab ID: 10501574002** Collected: 12/05/19 08:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 05:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 05:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 05:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 05:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 05:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 05:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 05:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 05:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 05:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 05:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 05:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 05:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 05:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 05:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	75-136		1		12/11/19 05:10	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/11/19 05:10	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		12/11/19 05:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	113	mg/L	5.0	2.0	1		12/06/19 17:00		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	259	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/10/19 16:52	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.8	mg/L	1.2	0.12	1		12/10/19 16:31	16887-00-6	
Nitrate as N	15.0	mg/L	0.50	0.062	5		12/07/19 09:30	14797-55-8	
Sulfate	13.1	mg/L	1.2	0.28	1		12/10/19 16:31	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	14.2	mg/L	2.0	0.35	20		12/12/19 17:10		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:29		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 18:01	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Sample: Stark-GW-120519 **Lab ID: 10501574003** Collected: 12/05/19 12:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/10/19 13:28	12/10/19 13:28	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/10/19 13:28	12/10/19 13:28	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/10/19 13:28	12/10/19 13:28	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 12:41	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 12:41	7440-38-2	
Barium, Dissolved	31.6	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 12:41	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 12:41	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 12:41	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 12:41	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 12:41	7440-48-4	
Copper, Dissolved	65.6	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 12:41	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 12:41	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 12:41	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 12:41	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 12:41	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 12:41	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 12:41	7440-28-0	
Vanadium, Dissolved	6.0J	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 12:41	7440-62-2	
Zinc, Dissolved	58.8	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 12:41	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:13	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	110	mg/L	5.0	2.0	1		12/06/19 17:10		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	264	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/10/19 16:52	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.7	mg/L	1.2	0.12	1		12/10/19 17:09	16887-00-6	
Nitrate as N	15.2	mg/L	0.50	0.062	5		12/07/19 09:48	14797-55-8	
Sulfate	12.5	mg/L	1.2	0.28	1		12/10/19 17:09	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	13.3	mg/L	1.0	0.18	10		12/12/19 17:13		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:29		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: Stark-GW-120519 **Lab ID: 10501574003** Collected: 12/05/19 12:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 19:19	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

Sample: Lashaw-GW-120519 **Lab ID: 10501574004** Collected: 12/05/19 14:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/10/19 13:31	12/10/19 13:31	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/10/19 13:31	12/10/19 13:31	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/10/19 13:31	12/10/19 13:31	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 12:43	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 12:43	7440-38-2	
Barium, Dissolved	8.9J	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 12:43	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 12:43	7440-41-7	
Cadmium, Dissolved	0.30J	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 12:43	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 12:43	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 12:43	7440-48-4	
Copper, Dissolved	2.6J	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 12:43	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 12:43	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 12:43	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 12:43	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 12:43	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 12:43	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 12:43	7440-28-0	
Vanadium, Dissolved	11.3J	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 12:43	7440-62-2	
Zinc, Dissolved	107	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 12:43	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:16	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	143	mg/L	5.0	2.0	1		12/06/19 17:19		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	191	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/10/19 16:53	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	2.2	mg/L	1.2	0.12	1		12/10/19 17:48	16887-00-6	M1
Nitrate as N	3.2	mg/L	0.10	0.012	1		12/06/19 23:34	14797-55-8	
Sulfate	7.4	mg/L	1.2	0.28	1		12/06/19 23:34	14808-79-8	M1
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	3.1	mg/L	0.50	0.088	5		12/12/19 17:15		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:29		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: Lashaw-GW-120519 **Lab ID: 10501574004** Collected: 12/05/19 14:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 19:31	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: Lang-GW-120519 **Lab ID: 10501574005** Collected: 12/05/19 15:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175									
Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/10/19 13:33	12/10/19 13:33	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/10/19 13:33	12/10/19 13:33	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/10/19 13:33	12/10/19 13:33	74-85-1	
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	199	mg/L	5.0	2.0	1		12/06/19 17:26		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Total Dissolved Solids	254	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total									
Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/10/19 17:07	18496-25-8	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Chloride	2.2	mg/L	1.2	0.12	1		12/10/19 19:23	16887-00-6	
Nitrate as N	0.50	mg/L	0.10	0.012	1		12/06/19 23:52	14797-55-8	
Sulfate	2.4	mg/L	1.2	0.28	1		12/06/19 23:52	14808-79-8	
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.48	mg/L	0.10	0.018	1		12/12/19 16:35		
410.4 COD									
Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:30		
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 19:44	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: TB1-120519 **Lab ID: 10501574006** Collected: 12/05/19 07:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 00:23	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 00:23	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 00:23	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 00:23	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 00:23	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 00:23	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:23	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:23	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 00:23	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 00:23	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:23	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:23	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 00:23	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 00:23	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 00:23	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 00:23	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 00:23	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 00:23	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 00:23	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:23	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 00:23	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:23	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 00:23	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 00:23	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 00:23	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 00:23	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:23	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 00:23	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 00:23	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 00:23	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 00:23	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 00:23	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 00:23	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 00:23	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 00:23	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 00:23	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 00:23	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 00:23	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 00:23	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 00:23	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 00:23	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:23	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 00:23	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 00:23	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 00:23	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 00:23	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: TB1-120519 **Lab ID: 10501574006** Collected: 12/05/19 07:00 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 00:23	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 00:23	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 00:23	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 00:23	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 00:23	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 00:23	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 00:23	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 00:23	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 00:23	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 00:23	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 00:23	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 00:23	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:23	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 00:23	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 00:23	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 00:23	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 00:23	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 00:23	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 00:23	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 00:23	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:23	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 00:23	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 00:23	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 00:23	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 00:23	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:23	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:23	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:23	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 00:23	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 00:23	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 00:23	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 00:23	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 00:23	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 00:23	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%	75-136		1		12/11/19 00:23	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 00:23	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		12/11/19 00:23	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: TB2-120519 **Lab ID: 10501574007** Collected: 12/05/19 07:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 00:47	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 00:47	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 00:47	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 00:47	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 00:47	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 00:47	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:47	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:47	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 00:47	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 00:47	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:47	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 00:47	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 00:47	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 00:47	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 00:47	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 00:47	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 00:47	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 00:47	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 00:47	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:47	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 00:47	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:47	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 00:47	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 00:47	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 00:47	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 00:47	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:47	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 00:47	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 00:47	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 00:47	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 00:47	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 00:47	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 00:47	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 00:47	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 00:47	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 00:47	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 00:47	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 00:47	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 00:47	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 00:47	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 00:47	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:47	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 00:47	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 00:47	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 00:47	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 00:47	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Sample: TB2-120519 **Lab ID: 10501574007** Collected: 12/05/19 07:30 Received: 12/06/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 00:47	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 00:47	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 00:47	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 00:47	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 00:47	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 00:47	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 00:47	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 00:47	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 00:47	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 00:47	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 00:47	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 00:47	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 00:47	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 00:47	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 00:47	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 00:47	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 00:47	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 00:47	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 00:47	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 00:47	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:47	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 00:47	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 00:47	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 00:47	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 00:47	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 00:47	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:47	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 00:47	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 00:47	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 00:47	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 00:47	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 00:47	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 00:47	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 00:47	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		12/11/19 00:47	17060-07-0	
Toluene-d8 (S)	112	%	75-125		1		12/11/19 00:47	2037-26-5	
4-Bromofluorobenzene (S)	93	%	75-125		1		12/11/19 00:47	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 1393798 Analysis Method: RSK-175
QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: R3480908-1 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/10/19 13:07	
Ethane	ug/L	<4.07	13.0	4.07	12/10/19 13:07	
Ethene	ug/L	<4.26	13.0	4.26	12/10/19 13:07	

LABORATORY CONTROL SAMPLE & LCSD: R3480908-6 R3480908-7

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	60.7	65.2	89.5	96.2	85.0-115	7.15	20	
Ethane	ug/L	129	117	120	90.7	93.0	85.0-115	2.53	20	
Ethene	ug/L	127	113	115	89.0	90.6	85.0-115	1.75	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3480908-4 R3480908-5

Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	ND	67.8	67.8	101	81.9	149	121	85.0-115	20.9	20	MH,R1
Ethane	ug/L	ND	129	129	187	161	145	125	85.0-115	14.9	20	MH
Ethene	ug/L	ND	127	127	180	154	142	121	85.0-115	15.6	20	MH

SAMPLE DUPLICATE: R3480908-2

Parameter	Units	L1168498-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	23.0	24.8	7.53	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3480908-3

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L		382	0.261	20	
Ethane	ug/L		<4.07	0.00	20	
Ethene	ug/L		<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 648778 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004

METHOD BLANK: 3490276 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/11/19 11:59	

LABORATORY CONTROL SAMPLE: 3490277

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.7	113	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490278 3490279

Parameter	Units	10501574001		MS		MSD		% Rec		Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec				
Mercury, Dissolved	ug/L	<0.093	5	5	5	5.8	5.8	117	117	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490280 3490281

Parameter	Units	10501811001		MS		MSD		% Rec		Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec				
Mercury, Dissolved	ug/L	<0.093	5	5	5	5.3	5.6	107	113	80-120	6	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 648770 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004

METHOD BLANK: 3490245 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/11/19 12:28	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/11/19 12:28	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/11/19 12:28	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/11/19 12:28	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/11/19 12:28	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/11/19 12:28	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/11/19 12:28	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/11/19 12:28	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/11/19 12:28	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/11/19 12:28	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/11/19 12:28	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/11/19 12:28	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/11/19 12:28	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/11/19 12:28	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/11/19 12:28	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/11/19 12:28	

LABORATORY CONTROL SAMPLE: 3490246

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1010	101	80-120	
Arsenic, Dissolved	ug/L	1000	1000	100	80-120	
Barium, Dissolved	ug/L	1000	987	99	80-120	
Beryllium, Dissolved	ug/L	1000	999	100	80-120	
Cadmium, Dissolved	ug/L	1000	1010	101	80-120	
Chromium, Dissolved	ug/L	1000	979	98	80-120	
Cobalt, Dissolved	ug/L	1000	985	99	80-120	
Copper, Dissolved	ug/L	1000	963	96	80-120	
Lead, Dissolved	ug/L	1000	989	99	80-120	
Molybdenum, Dissolved	ug/L	1000	995	100	80-120	
Nickel, Dissolved	ug/L	1000	984	98	80-120	
Selenium, Dissolved	ug/L	1000	1030	103	80-120	
Silver, Dissolved	ug/L	500	494	99	80-120	
Thallium, Dissolved	ug/L	1000	970	97	80-120	
Vanadium, Dissolved	ug/L	1000	976	98	80-120	
Zinc, Dissolved	ug/L	1000	1000	100	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490247												3490248	
Parameter	Units	10501574001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Antimony, Dissolved	ug/L	<7.0	1000	1000	993	1020	99	102	75-125	2	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1000	1020	100	102	75-125	1	20		
Barium, Dissolved	ug/L	65.2	1000	1000	1040	1060	98	99	75-125	2	20		
Beryllium, Dissolved	ug/L	0.24J	1000	1000	998	1010	100	101	75-125	2	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	987	1000	99	100	75-125	1	20		
Chromium, Dissolved	ug/L	0.85J	1000	1000	974	988	97	99	75-125	1	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	957	973	96	97	75-125	2	20		
Copper, Dissolved	ug/L	43.7	1000	1000	1010	1030	97	98	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	970	992	97	99	75-125	2	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	987	996	99	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	960	971	96	97	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1020	1040	102	104	75-125	2	20		
Silver, Dissolved	ug/L	<0.40	500	500	496	502	99	100	75-125	1	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	957	976	95	97	75-125	2	20		
Vanadium, Dissolved	ug/L	10.0J	1000	1000	985	1000	97	99	75-125	2	20		
Zinc, Dissolved	ug/L	25.5	1000	1000	999	1020	97	99	75-125	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490249												3490250	
Parameter	Units	10501811001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Antimony, Dissolved	ug/L	<7.0	1000	1000	1010	1000	101	100	75-125	1	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1020	999	102	100	75-125	2	20		
Barium, Dissolved	ug/L	44.3	1000	1000	1050	1030	101	98	75-125	2	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1020	1000	102	100	75-125	2	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1020	1000	102	100	75-125	2	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	999	979	100	98	75-125	2	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	993	974	99	97	75-125	2	20		
Copper, Dissolved	ug/L	10.9	1000	1000	1000	979	99	97	75-125	2	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1000	982	100	98	75-125	2	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1010	998	101	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	988	973	99	97	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	1030	105	103	75-125	2	20		
Silver, Dissolved	ug/L	<0.40	500	500	505	496	101	99	75-125	2	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	981	976	98	97	75-125	1	20		
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1000	980	100	98	75-125	2	20		
Zinc, Dissolved	ug/L	43.8	1000	1000	1050	1040	101	99	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 649118 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501574001, 10501574002, 10501574006, 10501574007

METHOD BLANK: 3491522 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574006, 10501574007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/10/19 22:47	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/10/19 22:47	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/10/19 22:47	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/10/19 22:47	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/10/19 22:47	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/10/19 22:47	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/10/19 22:47	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/10/19 22:47	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/10/19 22:47	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/10/19 22:47	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/10/19 22:47	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/10/19 22:47	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/10/19 22:47	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/10/19 22:47	
Acetone	ug/L	<9.2	20.0	9.2	12/10/19 22:47	
Acrolein	ug/L	<3.2	10.0	3.2	12/10/19 22:47	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/10/19 22:47	
Benzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/10/19 22:47	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/10/19 22:47	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/10/19 22:47	
Bromoform	ug/L	<0.80	4.0	0.80	12/10/19 22:47	
Bromomethane	ug/L	<1.8	4.0	1.8	12/10/19 22:47	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/10/19 22:47	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

METHOD BLANK: 3491522

Matrix: Water

Associated Lab Samples: 10501574001, 10501574002, 10501574006, 10501574007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Chloroethane	ug/L	<0.49	1.0	0.49	12/10/19 22:47	
Chloroform	ug/L	<0.45	4.0	0.45	12/10/19 22:47	
Chloromethane	ug/L	<0.48	4.0	0.48	12/10/19 22:47	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/10/19 22:47	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/10/19 22:47	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/10/19 22:47	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/10/19 22:47	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/10/19 22:47	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/10/19 22:47	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/10/19 22:47	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/10/19 22:47	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/10/19 22:47	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/10/19 22:47	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/10/19 22:47	
Naphthalene	ug/L	<0.48	1.0	0.48	12/10/19 22:47	
o-Xylene	ug/L	<0.16	0.50	0.16	12/10/19 22:47	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/10/19 22:47	
Styrene	ug/L	<0.19	1.0	0.19	12/10/19 22:47	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/10/19 22:47	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/10/19 22:47	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/10/19 22:47	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/10/19 22:47	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/10/19 22:47	
Toluene	ug/L	<0.083	0.50	0.083	12/10/19 22:47	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/10/19 22:47	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/10/19 22:47	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/10/19 22:47	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/10/19 22:47	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/10/19 22:47	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/10/19 22:47	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/10/19 22:47	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/10/19 22:47	
1,2-Dichloroethane-d4 (S)	%	96	75-136		12/10/19 22:47	
4-Bromofluorobenzene (S)	%	96	75-125		12/10/19 22:47	
Toluene-d8 (S)	%	113	75-125		12/10/19 22:47	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.7	97	68-141	
1,1,1-Trichloroethane	ug/L	10	9.7	97	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	8.5	85	73-125	
1,1,2-Trichloroethane	ug/L	10	10.2	102	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	11.2	112	69-132	
1,1-Dichloroethane	ug/L	10	9.0	90	73-125	
1,1-Dichloroethene	ug/L	10	10.2	102	71-126	
1,1-Dichloropropene	ug/L	10	9.5	95	73-126	
1,2,3-Trichlorobenzene	ug/L	10	11.3	113	72-126	
1,2,3-Trichloropropane	ug/L	10	8.9	89	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.6	116	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	22.4	90	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	9.2	92	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	74-125	N2
1,2-Dichloropropane	ug/L	10	8.2	82	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.2	112	75-127	
1,3-Dichlorobenzene	ug/L	10	11.3	113	75-126	
1,3-Dichloropropane	ug/L	10	9.8	98	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	226	113	72-129	
2,2,4-Trimethylpentane	ug/L	10	8.6	86	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	34.8	70	59-144	
2-Chlorotoluene	ug/L	10	10.9	109	75-127	
2-Hexanone	ug/L	50	43.4	87	73-134	
4-Chlorotoluene	ug/L	10	11.1	111	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	43.8	88	62-141	
Acetone	ug/L	50	36.4	73	60-137	
Acrolein	ug/L	100	67.6	68	60-141	
Acrylonitrile	ug/L	100	82.0	82	75-129	
Benzene	ug/L	10	9.2	92	73-125	
Bromobenzene	ug/L	10	10.6	106	73-125	
Bromochloromethane	ug/L	10	9.9	99	75-135	
Bromodichloromethane	ug/L	10	7.7	77	75-125	
Bromoform	ug/L	10	9.6	96	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.8	98	47-137	
Carbon tetrachloride	ug/L	10	10.3	103	75-125	
Chlorobenzene	ug/L	10	10.6	106	75-125	
Chloroethane	ug/L	10	7.5	75	63-136	
Chloroform	ug/L	10	9.9	99	73-128	
Chloromethane	ug/L	10	8.9	89	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.5	95	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.6	96	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

LABORATORY CONTROL SAMPLE: 3491523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.2	92	75-125	
Dibromomethane	ug/L	10	10.3	103	75-125	
Dichlorodifluoromethane	ug/L	10	10.4	104	63-132	
Dichlorofluoromethane	ug/L	10	9.5	95	68-127	
Diisopropyl ether	ug/L	10	7.7	77	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.9	79	75-125	
Ethylbenzene	ug/L	10	11.2	112	75-125	
Hexachloro-1,3-butadiene	ug/L	10	11.6	116	72-134	
Isopropylbenzene (Cumene)	ug/L	10	11.7	117	75-125	
m&p-Xylene	ug/L	20	23.9	119	75-126	
Methyl-tert-butyl ether	ug/L	10	8.2	82	75-125	
Methylene Chloride	ug/L	10	10.0	100	70-125	
n-Butylbenzene	ug/L	10	11.0	110	75-126	
n-Propylbenzene	ug/L	10	11.0	110	73-127	
Naphthalene	ug/L	10	11.1	111	63-128	
o-Xylene	ug/L	10	12.4	124	75-128	
p-Isopropyltoluene	ug/L	10	12.3	123	75-125	
sec-Butylbenzene	ug/L	10	11.9	119	75-126	
Styrene	ug/L	10	10.8	108	75-125	
tert-Amylmethyl ether	ug/L	10	7.9	79	75-125	
tert-Butyl Alcohol	ug/L	100	93.8	94	75-130	
tert-Butylbenzene	ug/L	10	11.9	119	75-131	
Tetrachloroethene	ug/L	10	11.6	116	74-125	
Tetrahydrofuran	ug/L	100	93.8	94	64-138	
Toluene	ug/L	10	11.0	110	74-125	
trans-1,2-Dichloroethene	ug/L	10	9.8	98	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	19.1	76	60-127	
Trichloroethene	ug/L	10	10.5	105	75-127	
Trichlorofluoromethane	ug/L	10	10.9	109	72-133	
Vinyl acetate	ug/L	10	7.5J	75	61-129	
Vinyl chloride	ug/L	10	10	100	75-128	
Xylene (Total)	ug/L	30	36.3	121	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-136	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			106	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491524 3491525

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501574001	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.2	105	102	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	10.1	10.8	101	108	74-136	7	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	10.3	9.1	103	91	66-134	12	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.1	9.9	101	99	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3491524		3491525								
Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	11.8	12.3	118	123	65-146	4	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	9.6	9.2	96	92	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	10.7	10.4	107	104	66-139	3	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.9	10.1	99	101	67-134	2	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	13.0	12.2	130	122	67-129	6	30	M1
1,2,3-Trichloropropane	ug/L	<0.26	10	10	10.9	10.2	109	102	69-128	6	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	13.3	13.2	133	132	65-140	1	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.4	12.8	124	128	71-133	3	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	26.5	26.1	106	105	54-138	1	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	10.4	10.1	104	101	68-125	3	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.5	12.3	115	123	74-136	7	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	9.2	9.4	92	94	68-125	2	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.2	19.7	96	98	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.6	9.1	96	91	67-125	6	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.1	12.9	121	129	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	11.9	12.5	119	125	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	9.7	102	97	71-125	5	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.3	11.9	113	119	74-126	6	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	228	201	114	100	68-125	13	30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	10.6	8.9	106	89	54-129	17	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	9.8	10	98	100	69-139	1	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	38.3	37.4	77	75	54-144	2	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.7	12.3	117	123	75-134	5	30	
2-Hexanone	ug/L	<0.88	50	50	52.4	47.7	105	95	58-137	9	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.9	12.2	119	122	72-133	3	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	52.3	49.1	105	98	60-129	6	30	
Acetone	ug/L	<9.2	50	50	37.1	42.0	74	84	62-132	12	30	
Acrolein	ug/L	<3.2	100	100	95.4	93.6	95	94	30-150	2	30	
Acrylonitrile	ug/L	<0.91	100	100	87.2	84.7	87	85	68-125	3	30	
Benzene	ug/L	<0.10	10	10	9.7	9.5	97	95	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	11.2	11.1	112	111	73-126	0	30	
Bromochloromethane	ug/L	<0.27	10	10	8.9	9.6	89	96	66-143	7	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.5	9.3	95	93	74-125	2	30	
Bromoform	ug/L	<0.80	10	10	10.4	10.2	104	102	64-134	2	30	
Bromomethane	ug/L	<1.8	10	10	7.4	7.1	74	71	30-150	4	30	
Carbon disulfide	ug/L	<0.19	10	10	10.2	9.7	102	97	43-147	5	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.9	11.7	109	117	71-143	7	30	
Chlorobenzene	ug/L	<0.17	10	10	10.6	10.9	106	109	75-125	3	30	
Chloroethane	ug/L	<0.49	10	10	7.8	7.5	78	75	75-129	3	30	
Chloroform	ug/L	<0.45	10	10	8.8	8.8	88	88	66-132	1	30	
Chloromethane	ug/L	<0.48	10	10	9.4	9.0	94	90	53-137	4	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	9.0	9.3	90	93	67-133	2	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	11.1	9.2	111	92	66-125	19	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Parameter	Units	10501574001		3491524		3491525		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibromochloromethane	ug/L	<0.12	10	10	9.3	9.2	93	92	62-132	1	30			
Dibromomethane	ug/L	<0.16	10	10	9.5	9.6	95	96	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	10	10	10.8	10.8	108	108	71-142	0	30			
Dichlorofluoromethane	ug/L	<0.14	10	10	9.8	9.7	98	97	70-131	2	30			
Diisopropyl ether	ug/L	<0.13	10	10	8.4	8.2	84	82	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	8.3	8.0	83	80	66-128	3	30			
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.8	112	118	74-126	6	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	13.4	11.8	134	118	68-143	13	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.6	13.1	116	131	74-130	11	30	M1		
m&p-Xylene	ug/L	<0.31	20	20	23.7	25.3	118	126	69-132	7	30			
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.8	8.7	88	87	65-131	1	30			
Methylene Chloride	ug/L	<0.98	10	10	9.6	9.7	96	97	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	10	10	12.2	12.0	122	120	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	10	10	11.9	12.7	119	127	67-138	7	30			
Naphthalene	ug/L	<0.48	10	10	12.4	12.5	124	125	60-130	1	30			
o-Xylene	ug/L	<0.16	10	10	12.1	12.9	121	129	69-131	7	30			
p-Isopropyltoluene	ug/L	<0.15	10	10	13.2	13.3	132	133	72-133	0	30			
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.3	131	133	73-134	1	30			
Styrene	ug/L	<0.19	10	10	10.1	10.8	101	108	72-125	7	30			
tert-Amylmethyl ether	ug/L	<0.11	10	10	8.7	8.2	87	82	67-125	6	30			
tert-Butyl Alcohol	ug/L	<1.2	100	100	88.3	97.3	88	97	64-137	10	30			
tert-Butylbenzene	ug/L	<0.15	10	10	12.7	13.4	127	134	70-143	6	30			
Tetrachloroethene	ug/L	<0.17	10	10	12.5	12.6	125	126	72-129	0	30			
Tetrahydrofuran	ug/L	<2.2	100	100	92.4	102	92	102	66-128	10	30			
Toluene	ug/L	<0.083	10	10	11.3	11.2	113	112	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	10.2	10.4	102	104	62-137	2	30			
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	9.8	9.8	98	98	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	23.7	21.2	95	85	45-128	11	30			
Trichloroethene	ug/L	<0.15	10	10	10.8	10.5	108	105	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	10	10	11.2	11.4	112	114	75-139	1	30			
Vinyl acetate	ug/L	<1.1	10	10	7.8J	7.7J	78	77	51-135		30			
Vinyl chloride	ug/L	<0.092	10	10	10.3	9.8	103	98	68-146	5	30			
Xylene (Total)	ug/L	<0.31	30	30	35.7	38.2	119	127	67-137	7	30			
1,2-Dichloroethane-d4 (S)	%						100	100	75-136					
4-Bromofluorobenzene (S)	%						99	96	75-125					
Toluene-d8 (S)	%						107	105	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 648596 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 3488977 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2.3J	5.0	2.0	12/06/19 12:56	

LABORATORY CONTROL SAMPLE & LCSD: 3488978 3488979

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.1	42.1	105	105	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3488980 3488982

Parameter	Units	10501567001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	36.2	40	40	76.8	76.5	102	101	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3488983 3488984

Parameter	Units	10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	212	40	40	254	256	105	111	80-120	1	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

QC Batch: 649540

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 3493333

Matrix: Water

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/12/19 11:40	

LABORATORY CONTROL SAMPLE: 3493334

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 3493335

Parameter	Units	10501574001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	335	324	3	5	

SAMPLE DUPLICATE: 3493336

Parameter	Units	10501811001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	209	205	2	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

QC Batch: 168004

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 761154

Matrix: Water

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/10/19 16:21	

LABORATORY CONTROL SAMPLE: 761155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.22	110	90-110	

MATRIX SPIKE SAMPLE: 761157

Parameter	Units	10501574001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.2	0.14	68	75-125	M1

SAMPLE DUPLICATE: 761156

Parameter	Units	10501574001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0062	<0.0062		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 648958 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 3490871 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/10/19 07:55	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/10/19 07:55	
Sulfate	mg/L	<0.28	1.2	0.28	12/10/19 07:55	

LABORATORY CONTROL SAMPLE: 3490872

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.6	101	90-110	
Nitrate as N	mg/L	1	0.96	96	90-110	
Sulfate	mg/L	12.5	13.5	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3489037 3489038

Parameter	Units	10501574001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Chloride	mg/L	6.1	12.5	12.5	18.8	19.0	102	104	90-110	1	20		
Nitrate as N	mg/L	7.5	1	1	7.3	7.4	-12	-2	90-110	1	20 M1		
Sulfate	mg/L	18.2	12.5	12.5	29.2	29.6	88	91	90-110	1	20 M1		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490873 3490874

Parameter	Units	10501574004		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Chloride	mg/L	2.2	12.5	12.5	17.6	17.6	123	123	90-110	0	20 M1		
Nitrate as N	mg/L	3.2	1	1	4.3	4.2	103	103	90-110	0	20		
Sulfate	mg/L	7.4	12.5	12.5	23.0	22.9	125	124	90-110	0	20 M1		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 649656 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10501574001, 10501574002

METHOD BLANK: 3493713 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/12/19 16:18	

LABORATORY CONTROL SAMPLE: 3493714

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.95	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493715 3493716

Parameter	Units	10501574001		10501574002		3493715		3493716		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec	MS % Rec	MSD % Rec				
Nitrogen, NO2 plus NO3	mg/L	7.0	10	10	10	16.9	16.1	99	91	90-110	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493717 3493718

Parameter	Units	10501574002		10501574001		3493717		3493718		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec	MS % Rec	MSD % Rec				
Nitrogen, NO2 plus NO3	mg/L	14.2	20	20	20	35.4	35.0	106	104	90-110	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 649659 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10501574003, 10501574004, 10501574005

METHOD BLANK: 3493732 Matrix: Water
Associated Lab Samples: 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/12/19 16:54	FS

LABORATORY CONTROL SAMPLE: 3493733

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493734 3493735

Parameter	Units	10501811001		10501811002		10501811003		10501811004		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1	1	1.0	1.0	101	101	90-110	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493736 3493737

Parameter	Units	10501811002		10501811003		10501811004		10501811005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1	1	0.91	0.91	91	91	90-110	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501574

QC Batch: 649290 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 3492290 Matrix: Water
Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/11/19 13:26	

LABORATORY CONTROL SAMPLE: 3492291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	309	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492292 3492293

Parameter	Units	10501574001		3492292		3492293		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Chemical Oxygen Demand	mg/L	<17.0	250	250	259	257	102	102	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492294 3492295

Parameter	Units	10501811001		3492294		3492295		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Chemical Oxygen Demand	mg/L	<17.0	250	250	247	244	98	97	90-110	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

QC Batch: 181049

Analysis Method: SM 5310C

QC Batch Method: SM 5310C

Analysis Description: 5310C TOC

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

METHOD BLANK: 715764

Matrix: Water

Associated Lab Samples: 10501574001, 10501574002, 10501574003, 10501574004, 10501574005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/12/19 16:18	

LABORATORY CONTROL SAMPLE: 715765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	26.1	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715766 715767

Parameter	Units	715766		715767		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual	
		10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Total Organic Carbon	mg/L	0.68J	25	25	27.2	27.6	106	108	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715768 715769

Parameter	Units	715768		715769		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual	
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Total Organic Carbon	mg/L	<0.39	25	25	26.7	26.8	106	107	80-120	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

FS The sample was filtered in the laboratory prior to analysis.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501574001	Asher-GW-120519	RSK175	1393798	RSK-175	1393798
10501574002	FD1-GW-120519	RSK175	1393798	RSK-175	1393798
10501574003	Stark-GW-120519	RSK175	1393798	RSK-175	1393798
10501574004	Lashaw-GW-120519	RSK175	1393798	RSK-175	1393798
10501574005	Lang-GW-120519	RSK175	1393798	RSK-175	1393798
10501574001	Asher-GW-120519	EPA 3010	648770	EPA 6010D	649284
10501574002	FD1-GW-120519	EPA 3010	648770	EPA 6010D	649284
10501574003	Stark-GW-120519	EPA 3010	648770	EPA 6010D	649284
10501574004	Lashaw-GW-120519	EPA 3010	648770	EPA 6010D	649284
10501574001	Asher-GW-120519	EPA 7470A	648778	EPA 7470A	649328
10501574002	FD1-GW-120519	EPA 7470A	648778	EPA 7470A	649328
10501574003	Stark-GW-120519	EPA 7470A	648778	EPA 7470A	649328
10501574004	Lashaw-GW-120519	EPA 7470A	648778	EPA 7470A	649328
10501574001	Asher-GW-120519	EPA 8260B	649118		
10501574002	FD1-GW-120519	EPA 8260B	649118		
10501574006	TB1-120519	EPA 8260B	649118		
10501574007	TB2-120519	EPA 8260B	649118		
10501574001	Asher-GW-120519	SM 2320B	648596		
10501574002	FD1-GW-120519	SM 2320B	648596		
10501574003	Stark-GW-120519	SM 2320B	648596		
10501574004	Lashaw-GW-120519	SM 2320B	648596		
10501574005	Lang-GW-120519	SM 2320B	648596		
10501574001	Asher-GW-120519	SM 2540C	649540		
10501574002	FD1-GW-120519	SM 2540C	649540		
10501574003	Stark-GW-120519	SM 2540C	649540		
10501574004	Lashaw-GW-120519	SM 2540C	649540		
10501574005	Lang-GW-120519	SM 2540C	649540		
10501574001	Asher-GW-120519	SM 4500-S-2 D	168004		
10501574002	FD1-GW-120519	SM 4500-S-2 D	168004		
10501574003	Stark-GW-120519	SM 4500-S-2 D	168004		
10501574004	Lashaw-GW-120519	SM 4500-S-2 D	168004		
10501574005	Lang-GW-120519	SM 4500-S-2 D	168004		
10501574001	Asher-GW-120519	EPA 300.0	648958		
10501574002	FD1-GW-120519	EPA 300.0	648958		
10501574003	Stark-GW-120519	EPA 300.0	648958		
10501574004	Lashaw-GW-120519	EPA 300.0	648958		
10501574005	Lang-GW-120519	EPA 300.0	648958		
10501574001	Asher-GW-120519	EPA 353.2	649656		
10501574002	FD1-GW-120519	EPA 353.2	649656		
10501574003	Stark-GW-120519	EPA 353.2	649659		
10501574004	Lashaw-GW-120519	EPA 353.2	649659		
10501574005	Lang-GW-120519	EPA 353.2	649659		
10501574001	Asher-GW-120519	EPA 410.4	649290	EPA 410.4	649341
10501574002	FD1-GW-120519	EPA 410.4	649290	EPA 410.4	649341

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501574

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501574003	Stark-GW-120519	EPA 410.4	649290	EPA 410.4	649341
10501574004	Lashaw-GW-120519	EPA 410.4	649290	EPA 410.4	649341
10501574005	Lang-GW-120519	EPA 410.4	649290	EPA 410.4	649341
10501574001	Asher-GW-120519	SM 5310C	181049		
10501574002	FD1-GW-120519	SM 5310C	181049		
10501574003	Stark-GW-120519	SM 5310C	181049		
10501574004	Lashaw-GW-120519	SM 5310C	181049		
10501574005	Lang-GW-120519	SM 5310C	181049		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: CH2M Hill	Report To: Mark Ochsner, Brad Ostapowicz	Attention: Anne Walsh
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Lindsey Baumann ^{Jacobs}	Company: UPRR
Email:	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221
Phone: Fax:	Purchase Order # PEDD# 1497	Pace Quote: Contract# 758938
Requested Due Date: 10 Day Standard	Project Name: Freeman WA-Grain Handling Facility	Pace Project Manager: Jennifer Gross
	Project #: 1497	Pace Profile #: 36447 / 4

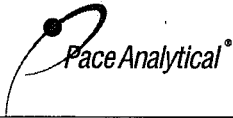
ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample IDs must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES							ANALYSES TEST	REQUESTED ANALYSIS FILTERED (Y/N)										MS/MSD Requested		
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Y		Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2		4500 Total Phosphorus	6010 Total Iron
1	Asher-GW-120519	WTG		12/5/19	1100	-	36	X	X	X	X	X																X	001	
2	FDI-GW-120519	WTG		12/5/19	0800	-	13	X	X	X	X	X																	002	
3	Stark-GW-120519	WTG		12/5/19	1230	-	10	X	X	X	X	X																	003	
4	Lashaw-GW-120519	WTG		12/5/19	1400	-	10	X	X	X	X	X																	004	
5	Lashaw-GW-120519	WTG		12/5/19	1430	-	10	X	X	X	X	X																	No samples	
6	Lang-GW-120519	WTG		12/5/19	1530	-	10	X	X		X	X																	005	
7	TB1-120519	WTG		12/5/19	0700	-	3					X																	006	
8	TB2-120519	WTG		12/5/19	0730	-	2						X																007	
9																														
10																														
11																														
12																														

WO#: 10501574

10501574

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME					
Short hold analyses are in bold	K. J. Jacobs	12/5/19	1:00	M. PAKE	12/6/19	8:50	0.3	Y	Y	Y	
*Field filtered by client											

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Kara Savage							
SIGNATURE of SAMPLER: <i>[Signature]</i>		DATE Signed: 12/5/19					

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** CH2M **Project #:** **WO#: 10501574**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9400 (8360/8370)

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489)

Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.3, 0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>0.4, 0.3</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** M12.6.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1: 3/3 1: 3/3 1: 3/3</u> <u>2-4: 1/1 2-5: 1/1 2-6: 1/1</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: <u>VOA</u> Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# _____
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll <u>703619</u> 0-6 Strip _____ 0-14 Strip <u>1004281</u>
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>218 302 / 236659</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	


CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JENNI GROSS **Date:** 120619

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: RNC  Page 59 of 65

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10501574 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/6/2019 Results Requested By: 12/20/2019

Report To	Subcontract To	Requested Analysis											
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710												

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers												LAB USE ONLY							
						HCL	VG	G	H																
1	Asher-GW-120519	RQS	12/5/2019 11:00	10501574001	Water	6																			MS/MSD 01
2	FD1-GW-120519	PS	12/5/2019 08:00	10501574002	Water	2																			02
3	Stark-GW-120519	PS	12/5/2019 12:30	10501574003	Water	2																			03
4	Lashaw-GW-120519	PS	12/5/2019 14:00	10501574004	Water	2																			04
5	Lang-GW-120519	PS	12/5/2019 15:30	10501574005	Water	2																			05

1168 473
F134

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/6/19 17:35			
2					
3			<i>[Signature]</i>	12/7/19 9:00	

Cooler Temperature on Receipt $10 \pm 1 = ^\circ\text{C}$ Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

1.1 ^{AL}₉₂

#13207518 3083

RAD SCREEN: <0.5 mR/hr

14 cont
N/A TB

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	<i>PACETWA</i>	<i>1168473</i>	
Cooler Received/Opened On:	<i>12 / 17 / 19</i>	Temperature:	<i>1.1</i>
Received By:	<i>clark dixon</i>		
Signature:	<i>Clark L Dixon</i>		
Receipt Check List		NP	Yes
COC Seal Present / Intact?			<input checked="" type="checkbox"/>
COC Signed / Accurate?			<input checked="" type="checkbox"/>
Bottles arrive intact?			<input checked="" type="checkbox"/>
Correct bottles used?			<input checked="" type="checkbox"/>
Sufficient volume sent?			<input checked="" type="checkbox"/>
If Applicable			
VOA Zero headspace?			<input checked="" type="checkbox"/>
Preservation Correct / Checked?			

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No



Workorder: 10501574 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/6/2019 Results Requested By: 12/20/2019

Report To	Subcontract To	Requested Analysis															
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333	<div style="text-align: center;"> <p>WO#: 20133662</p> <p>20133662</p> </div>															
										5636267 / 4500 Sulfide	5636267 / 4500 Sulfide						
										3	1	1	1	1	1	1	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Method	Preserved Containers	LAB USE ONLY									
1	Asher-GW-120519	RQS	12/5/2019 11:00	10501574001	Water	3		X	X								
2	FD1-GW-120519	PS	12/5/2019 08:00	10501574002	Water	1		X	MS/MSD								
3	Stark-GW-120519	PS	12/5/2019 12:30	10501574003	Water	1		X									
4	Lashaw-GW-120519	PS	12/5/2019 14:00	10501574004	Water	1		X									
5	Lang-GW-120519	PS	12/5/2019 15:30	10501574005	Water	1		X									

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>Steve Pace</i>	12/6/19 8:35	<i>Fred Eze</i>		
2	<i>Fred Eze</i>	12/7/19 8:35	<i>Steve Pace</i>	12/7/19 6:35	
3					

Cooler Temperature on Receipt 3.8C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upon

WO#: 20133662

1000 Riverland Blvd., Suite F
St. Rose, LA 70067

PM: CMM Due Date: 12/20/19

Pr CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/10/19 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____



Document Name:
Sample Condition Upon Receipt Form
Document No.:
F-VM-C-001-rev.13

Document Revised: 30Apr2019
Page 1 of 1
Issuing Authority:
Pace Virginia Minerals, Inc.

WO#: 12139201

PM: RK1 Due Date: 12/20/19
CLIENT: PACE MPLS

Sample Condition Upon Receipt

Client Name: Pace Mpls Project #:

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.5 Cooler Temp Corrected °C: 1.8 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: Bm 12/10/19

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>W+</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Lavonia Perrier

Project Manager Review: _____ Date: 12/10/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

December 18, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

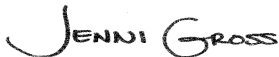
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #: 74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501811001	Atwood-GW-120619	Water	12/06/19 08:45	12/07/19 09:30
10501811002	Thorson-GW-120619	Water	12/06/19 10:45	12/07/19 09:30
10501811003	WS5-GW-120619	Water	12/06/19 12:00	12/07/19 09:30
10501811004	Randall-GW-120619	Water	12/06/19 14:00	12/07/19 09:30
10501811005	TB3-120619	Water	12/06/19 07:00	12/07/19 09:30
10501811006	TB4-120619	Water	12/06/19 07:30	12/07/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501811001	Atwood-GW-120619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
10501811002	Thorson-GW-120619	SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
10501811003	WS5-GW-120619	SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
10501811004	Randall-GW-120619	SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
10501811005	TB3-120619	SM 5310C	ZJT	1	PASI-V
		EPA 8260B	DS2	83	PASI-M
10501811006	TB4-120619	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501811001	Atwood-GW-120619					
EPA 6010D	Barium, Dissolved	44.3	ug/L	10.0	12/11/19 12:48	
EPA 6010D	Copper, Dissolved	10.9	ug/L	10.0	12/11/19 12:48	
EPA 6010D	Zinc, Dissolved	43.8	ug/L	20.0	12/11/19 12:48	
SM 2320B	Alkalinity, Total as CaCO3	147	mg/L	5.0	12/09/19 16:01	
SM 2540C	Total Dissolved Solids	209	mg/L	10.0	12/12/19 11:40	
EPA 300.0	Chloride	1.6	mg/L	1.2	12/09/19 16:28	M1
EPA 300.0	Sulfate	4.6	mg/L	1.2	12/09/19 16:28	B,M1
10501811002	Thorson-GW-120619					
RSK-175	Methane	17.8	ug/L	10.0	12/12/19 11:46	
EPA 6010D	Barium, Dissolved	52.2	ug/L	10.0	12/11/19 13:02	
EPA 6010D	Lead, Dissolved	2.4J	ug/L	10.0	12/11/19 13:02	
EPA 6010D	Zinc, Dissolved	37.9	ug/L	20.0	12/11/19 13:02	
SM 2320B	Alkalinity, Total as CaCO3	151	mg/L	5.0	12/09/19 16:33	
SM 2540C	Total Dissolved Solids	197	mg/L	10.0	12/12/19 11:40	
SM 4500-S-2 D	Sulfide, Total	0.036	mg/L	0.020	12/11/19 16:53	
EPA 300.0	Chloride	1.6	mg/L	1.2	12/09/19 17:59	
EPA 300.0	Sulfate	1.2	mg/L	1.2	12/09/19 17:59	B
10501811003	WS5-GW-120619					
SM 5310C	Total Organic Carbon	0.42J	mg/L	1.0	12/12/19 20:50	
10501811004	Randall-GW-120619					
EPA 6010D	Barium, Dissolved	21.4	ug/L	10.0	12/11/19 13:04	
EPA 6010D	Beryllium, Dissolved	0.12J	ug/L	5.0	12/11/19 13:04	
EPA 6010D	Cadmium, Dissolved	0.31J	ug/L	3.0	12/11/19 13:04	
EPA 6010D	Copper, Dissolved	9.9J	ug/L	10.0	12/11/19 13:04	
EPA 6010D	Vanadium, Dissolved	5.0J	ug/L	15.0	12/11/19 13:04	
EPA 6010D	Zinc, Dissolved	80.5	ug/L	20.0	12/11/19 13:04	
SM 2320B	Alkalinity, Total as CaCO3	187	mg/L	5.0	12/09/19 16:40	
SM 2540C	Total Dissolved Solids	255	mg/L	10.0	12/13/19 13:50	
EPA 300.0	Chloride	7.7	mg/L	1.2	12/09/19 18:17	
EPA 300.0	Nitrate as N	2.6	mg/L	0.10	12/09/19 18:17	H5
EPA 300.0	Sulfate	10.9	mg/L	1.2	12/09/19 18:17	
EPA 353.2	Nitrogen, NO2 plus NO3	2.1	mg/L	0.20	12/13/19 16:47	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

4 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Atwood-GW-120619 (Lab ID: 10501811001)
- TB3-120619 (Lab ID: 10501811005)
- TB4-120619 (Lab ID: 10501811006)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
- Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
- tert-Amylmethyl ether

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 18, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)
 - p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Atwood-GW-120619 (Lab ID: 10501811001)
 - 1,2-Dichloroethene (Total)
- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)
- TB3-120619 (Lab ID: 10501811005)
 - 1,2-Dichloroethene (Total)
- TB4-120619 (Lab ID: 10501811006)
 - 1,2-Dichloroethene (Total)

- Atwood-GW-120619 (Lab ID: 10501811001)
 - Dichlorofluoromethane
- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane
- TB3-120619 (Lab ID: 10501811005)
 - Dichlorofluoromethane
- TB4-120619 (Lab ID: 10501811006)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 168084

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 761795)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H5: Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

- Atwood-GW-120619 (Lab ID: 10501811001)
- Randall-GW-120619 (Lab ID: 10501811004)
- Thorson-GW-120619 (Lab ID: 10501811002)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 648402

B: Analyte was detected in the associated method blank.

- BLANK for HBN 648402 [WETA/418 (Lab ID: 3488039)
- Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 648402

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):
10501428001, 10501428004, 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3488041)
 - Nitrate as N
- MS (Lab ID: 3488043)
 - Chloride
 - Nitrate as N
- MS (Lab ID: 3490037)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3488042)
 - Nitrate as N
- MSD (Lab ID: 3488044)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3490038)
 - Chloride

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 18, 2019

QC Batch: 648402

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s):
10501428001,10501428004,10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Nitrate as N
- Sulfate

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3488043)
- Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649867

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148002,10502148003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 649867

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

3 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 18, 2019

General Information:

4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: Atwood-GW-120619 **Lab ID: 10501811001** Collected: 12/06/19 08:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/12/19 11:43	12/12/19 11:43	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/12/19 11:43	12/12/19 11:43	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/12/19 11:43	12/12/19 11:43	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 12:48	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 12:48	7440-38-2	
Barium, Dissolved	44.3	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 12:48	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 12:48	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 12:48	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 12:48	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 12:48	7440-48-4	
Copper, Dissolved	10.9	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 12:48	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 12:48	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 12:48	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 12:48	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 12:48	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 12:48	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 12:48	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 12:48	7440-62-2	
Zinc, Dissolved	43.8	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 12:48	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:23	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 16:24	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 16:24	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 16:24	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 16:24	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 16:24	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 16:24	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:24	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:24	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 16:24	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 16:24	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:24	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:24	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 16:24	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 16:24	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 16:24	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 16:24	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 16:24	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 16:24	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 16:24	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:24	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: **Atwood-GW-120619** Lab ID: **10501811001** Collected: 12/06/19 08:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 16:24	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:24	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 16:24	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 16:24	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 16:24	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 16:24	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:24	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 16:24	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 16:24	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 16:24	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 16:24	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 16:24	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 16:24	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 16:24	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 16:24	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 16:24	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 16:24	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 16:24	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 16:24	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 16:24	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 16:24	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:24	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 16:24	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 16:24	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 16:24	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 16:24	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 16:24	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 16:24	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 16:24	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 16:24	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 16:24	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 16:24	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 16:24	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 16:24	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 16:24	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 16:24	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 16:24	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 16:24	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:24	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 16:24	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 16:24	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 16:24	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 16:24	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 16:24	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 16:24	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 16:24	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: Atwood-GW-120619 **Lab ID: 10501811001** Collected: 12/06/19 08:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:24	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 16:24	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 16:24	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 16:24	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 16:24	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:24	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:24	99-87-6	M1
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:24	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 16:24	994-05-8	L2,M0
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 16:24	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 16:24	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 16:24	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 16:24	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 16:24	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 16:24	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 16:24	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		12/11/19 16:24	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	147	mg/L	5.0	2.0	1		12/09/19 16:01		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	209	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/11/19 16:51	18496-25-8	M1
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.6	mg/L	1.2	0.12	1		12/09/19 16:28	16887-00-6	M1
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/09/19 16:28	14797-55-8	H5,M1
Sulfate	4.6	mg/L	1.2	0.28	1		12/09/19 16:28	14808-79-8	B,M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/12/19 16:45		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:30		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 19:57	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Sample: Thorson-GW-120619 **Lab ID: 10501811002** Collected: 12/06/19 10:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	17.8	ug/L	10.0	2.91	1	12/12/19 11:46	12/12/19 11:46	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/12/19 11:46	12/12/19 11:46	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/12/19 11:46	12/12/19 11:46	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 13:02	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 13:02	7440-38-2	
Barium, Dissolved	52.2	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 13:02	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 13:02	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 13:02	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 13:02	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 13:02	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 13:02	7440-50-8	
Lead, Dissolved	2.4J	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 13:02	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 13:02	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 13:02	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 13:02	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 13:02	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 13:02	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 13:02	7440-62-2	
Zinc, Dissolved	37.9	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 13:02	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:31	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	151	mg/L	5.0	2.0	1		12/09/19 16:33		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	197	mg/L	10.0	5.0	1		12/12/19 11:40		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	0.036	mg/L	0.020	0.0062	1		12/11/19 16:53	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.6	mg/L	1.2	0.12	1		12/09/19 17:59	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/09/19 17:59	14797-55-8	H5
Sulfate	1.2	mg/L	1.2	0.28	1		12/09/19 17:59	14808-79-8	B
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/12/19 16:49		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:31		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: Thorson-GW-120619 **Lab ID: 10501811002** Collected: 12/06/19 10:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 20:37	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: WS5-GW-120619 **Lab ID: 10501811003** Collected: 12/06/19 12:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175		Analytical Method: RSK-175 Preparation Method: RSK175							
Methane	<2.91	ug/L	10.0	2.91	1	12/12/19 11:50	12/12/19 11:50	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/12/19 11:50	12/12/19 11:50	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/12/19 11:50	12/12/19 11:50	74-85-1	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.42J	mg/L	1.0	0.39	1		12/12/19 20:50	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Sample: Randall-GW-120619 **Lab ID: 10501811004** Collected: 12/06/19 14:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/12/19 11:58	12/12/19 11:58	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/12/19 11:58	12/12/19 11:58	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/12/19 11:58	12/12/19 11:58	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/10/19 14:59	12/11/19 13:04	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/10/19 14:59	12/11/19 13:04	7440-38-2	
Barium, Dissolved	21.4	ug/L	10.0	0.60	1	12/10/19 14:59	12/11/19 13:04	7440-39-3	
Beryllium, Dissolved	0.12J	ug/L	5.0	0.12	1	12/10/19 14:59	12/11/19 13:04	7440-41-7	
Cadmium, Dissolved	0.31J	ug/L	3.0	0.28	1	12/10/19 14:59	12/11/19 13:04	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/10/19 14:59	12/11/19 13:04	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/10/19 14:59	12/11/19 13:04	7440-48-4	
Copper, Dissolved	9.9J	ug/L	10.0	1.2	1	12/10/19 14:59	12/11/19 13:04	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/10/19 14:59	12/11/19 13:04	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/10/19 14:59	12/11/19 13:04	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/10/19 14:59	12/11/19 13:04	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/10/19 14:59	12/11/19 13:04	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/10/19 14:59	12/11/19 13:04	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/10/19 14:59	12/11/19 13:04	7440-28-0	
Vanadium, Dissolved	5.0J	ug/L	15.0	0.43	1	12/10/19 14:59	12/11/19 13:04	7440-62-2	
Zinc, Dissolved	80.5	ug/L	20.0	6.3	1	12/10/19 14:59	12/11/19 13:04	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/10/19 18:03	12/11/19 12:33	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	187	mg/L	5.0	2.0	1		12/09/19 16:40		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	255	mg/L	10.0	5.0	1		12/13/19 13:50		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/11/19 16:53	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	7.7	mg/L	1.2	0.12	1		12/09/19 18:17	16887-00-6	
Nitrate as N	2.6	mg/L	0.10	0.012	1		12/09/19 18:17	14797-55-8	H5
Sulfate	10.9	mg/L	1.2	0.28	1		12/09/19 18:17	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.1	mg/L	0.20	0.035	2		12/13/19 16:47		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:31		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: Randall-GW-120619 **Lab ID: 10501811004** Collected: 12/06/19 14:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/12/19 21:28	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: TB3-120619 **Lab ID: 10501811005** Collected: 12/06/19 07:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 16:48	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 16:48	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 16:48	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 16:48	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 16:48	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 16:48	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:48	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:48	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 16:48	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 16:48	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:48	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 16:48	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 16:48	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 16:48	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 16:48	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 16:48	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 16:48	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 16:48	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 16:48	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:48	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 16:48	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:48	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 16:48	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 16:48	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 16:48	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 16:48	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:48	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 16:48	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 16:48	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 16:48	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 16:48	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 16:48	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 16:48	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 16:48	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 16:48	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 16:48	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 16:48	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 16:48	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 16:48	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 16:48	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 16:48	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:48	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 16:48	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 16:48	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 16:48	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 16:48	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: TB3-120619 **Lab ID: 10501811005** Collected: 12/06/19 07:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 16:48	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 16:48	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 16:48	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 16:48	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 16:48	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 16:48	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 16:48	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 16:48	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 16:48	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 16:48	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 16:48	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 16:48	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 16:48	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 16:48	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 16:48	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 16:48	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 16:48	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 16:48	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 16:48	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 16:48	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:48	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 16:48	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 16:48	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 16:48	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 16:48	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 16:48	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:48	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 16:48	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 16:48	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 16:48	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 16:48	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 16:48	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 16:48	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 16:48	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 16:48	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 16:48	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 16:48	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: TB4-120619 **Lab ID: 10501811006** Collected: 12/06/19 07:30 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 17:12	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 17:12	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 17:12	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 17:12	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 17:12	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 17:12	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:12	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:12	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 17:12	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 17:12	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:12	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:12	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 17:12	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 17:12	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 17:12	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 17:12	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 17:12	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 17:12	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 17:12	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:12	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 17:12	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:12	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 17:12	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 17:12	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 17:12	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 17:12	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:12	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 17:12	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 17:12	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 17:12	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 17:12	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 17:12	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 17:12	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 17:12	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 17:12	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 17:12	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 17:12	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 17:12	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 17:12	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 17:12	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 17:12	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:12	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 17:12	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 17:12	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 17:12	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 17:12	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Sample: **TB4-120619** Lab ID: **10501811006** Collected: 12/06/19 07:30 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 17:12	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 17:12	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 17:12	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 17:12	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 17:12	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 17:12	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 17:12	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 17:12	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 17:12	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 17:12	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 17:12	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 17:12	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:12	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 17:12	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 17:12	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 17:12	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 17:12	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 17:12	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 17:12	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 17:12	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:12	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 17:12	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 17:12	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 17:12	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 17:12	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:12	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:12	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:12	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 17:12	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 17:12	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 17:12	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 17:12	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 17:12	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 17:12	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 17:12	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 17:12	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125		1		12/11/19 17:12	460-00-4	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 1395228 Analysis Method: RSK-175
QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
Associated Lab Samples: 10501811001, 10501811002, 10501811003, 10501811004

METHOD BLANK: R3481756-1 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002, 10501811003, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/12/19 11:27	
Ethane	ug/L	<4.07	13.0	4.07	12/12/19 11:27	
Ethene	ug/L	<4.26	13.0	4.26	12/12/19 11:27	

LABORATORY CONTROL SAMPLE & LCSD: R3481756-6 R3481756-7

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	66.5	67.8	98.1	100	85.0-115	1.94	20	
Ethane	ug/L	129	122	123	94.6	95.3	85.0-115	0.816	20	
Ethene	ug/L	127	117	117	92.1	92.1	85.0-115	0.00	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3481756-4 R3481756-5

Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	ND	67.8	67.8	68.5	76.0	101	112	85.0-115	10.4	20	
Ethane	ug/L	ND	129	129	128	144	99.2	112	85.0-115	11.8	20	
Ethene	ug/L	ND	127	127	123	139	96.9	109	85.0-115	12.2	20	

SAMPLE DUPLICATE: R3481756-2

Parameter	Units	10501811002 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	17.8	20.3	13.1	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3481756-3

Parameter	Units	L1169314-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	17.8	18.0	1.12	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 648778 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 3490276 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/11/19 11:59	

LABORATORY CONTROL SAMPLE: 3490277

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.7	113	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490278 3490279

Parameter	Units	10501574001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury, Dissolved	ug/L	<0.093	5	5.8	5	5.8	117	117	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490280 3490281

Parameter	Units	10501811001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury, Dissolved	ug/L	<0.093	5	5.3	5	5.6	107	113	80-120	6	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

QC Batch: 648770

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010

Analysis Description: 6010D Water Dissolved

Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 3490245

Matrix: Water

Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/11/19 12:28	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/11/19 12:28	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/11/19 12:28	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/11/19 12:28	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/11/19 12:28	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/11/19 12:28	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/11/19 12:28	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/11/19 12:28	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/11/19 12:28	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/11/19 12:28	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/11/19 12:28	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/11/19 12:28	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/11/19 12:28	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/11/19 12:28	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/11/19 12:28	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/11/19 12:28	

LABORATORY CONTROL SAMPLE: 3490246

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1010	101	80-120	
Arsenic, Dissolved	ug/L	1000	1000	100	80-120	
Barium, Dissolved	ug/L	1000	987	99	80-120	
Beryllium, Dissolved	ug/L	1000	999	100	80-120	
Cadmium, Dissolved	ug/L	1000	1010	101	80-120	
Chromium, Dissolved	ug/L	1000	979	98	80-120	
Cobalt, Dissolved	ug/L	1000	985	99	80-120	
Copper, Dissolved	ug/L	1000	963	96	80-120	
Lead, Dissolved	ug/L	1000	989	99	80-120	
Molybdenum, Dissolved	ug/L	1000	995	100	80-120	
Nickel, Dissolved	ug/L	1000	984	98	80-120	
Selenium, Dissolved	ug/L	1000	1030	103	80-120	
Silver, Dissolved	ug/L	500	494	99	80-120	
Thallium, Dissolved	ug/L	1000	970	97	80-120	
Vanadium, Dissolved	ug/L	1000	976	98	80-120	
Zinc, Dissolved	ug/L	1000	1000	100	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490247												3490248	
Parameter	Units	10501574001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max	Qual	
			Spike Conc.	Spike Conc.							RPD		
Antimony, Dissolved	ug/L	<7.0	1000	1000	993	1020	99	102	75-125	2	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1000	1020	100	102	75-125	1	20		
Barium, Dissolved	ug/L	65.2	1000	1000	1040	1060	98	99	75-125	2	20		
Beryllium, Dissolved	ug/L	0.24J	1000	1000	998	1010	100	101	75-125	2	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	987	1000	99	100	75-125	1	20		
Chromium, Dissolved	ug/L	0.85J	1000	1000	974	988	97	99	75-125	1	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	957	973	96	97	75-125	2	20		
Copper, Dissolved	ug/L	43.7	1000	1000	1010	1030	97	98	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	970	992	97	99	75-125	2	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	987	996	99	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	960	971	96	97	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1020	1040	102	104	75-125	2	20		
Silver, Dissolved	ug/L	<0.40	500	500	496	502	99	100	75-125	1	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	957	976	95	97	75-125	2	20		
Vanadium, Dissolved	ug/L	10.0J	1000	1000	985	1000	97	99	75-125	2	20		
Zinc, Dissolved	ug/L	25.5	1000	1000	999	1020	97	99	75-125	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490249												3490250	
Parameter	Units	10501811001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max	Qual	
			Spike Conc.	Spike Conc.							RPD		
Antimony, Dissolved	ug/L	<7.0	1000	1000	1010	1000	101	100	75-125	1	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1020	999	102	100	75-125	2	20		
Barium, Dissolved	ug/L	44.3	1000	1000	1050	1030	101	98	75-125	2	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1020	1000	102	100	75-125	2	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1020	1000	102	100	75-125	2	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	999	979	100	98	75-125	2	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	993	974	99	97	75-125	2	20		
Copper, Dissolved	ug/L	10.9	1000	1000	1000	979	99	97	75-125	2	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1000	982	100	98	75-125	2	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1010	998	101	100	75-125	1	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	988	973	99	97	75-125	1	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	1030	105	103	75-125	2	20		
Silver, Dissolved	ug/L	<0.40	500	500	505	496	101	99	75-125	2	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	981	976	98	97	75-125	1	20		
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1000	980	100	98	75-125	2	20		
Zinc, Dissolved	ug/L	43.8	1000	1000	1050	1040	101	99	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 649358 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501811001, 10501811005, 10501811006

METHOD BLANK: 3492506 Matrix: Water
Associated Lab Samples: 10501811001, 10501811005, 10501811006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501811001, 10501811005, 10501811006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	10501811001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	107	75-140	2	30	
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	97	74-136	2	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	107	66-134	10	30	
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	108	75-126	0	30	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Parameter	Units	3492508		3492509		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30		
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30		
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30		
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30		
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30		
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30		
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30		
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30		
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30		
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30		
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30		
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30		
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30		
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30	M1	
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30		
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30		
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30	M0	
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30		
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30		
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30		
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30		
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30		
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30		
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30		
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30		
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30		
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30		
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30		
1,2-Dichloroethane-d4 (S)	%						95	99	75-136				
4-Bromofluorobenzene (S)	%						92	96	75-125				
Toluene-d8 (S)	%						106	105	75-125				

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 648921 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 3490695 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2.3J	5.0	2.0	12/09/19 12:58	

LABORATORY CONTROL SAMPLE & LCSD: 3490696 3490697

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.5	42.8	106	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490698 3490699

Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	147	40	40	189	184	105	92	80-120	3	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 649540 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10501811001, 10501811002

METHOD BLANK: 3493333 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/12/19 11:40	

LABORATORY CONTROL SAMPLE: 3493334

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 3493335

Parameter	Units	10501574001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	335	324	3	5	

SAMPLE DUPLICATE: 3493336

Parameter	Units	10501811001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	209	205	2	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

QC Batch: 649847

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10501811004

METHOD BLANK: 3494628

Matrix: Water

Associated Lab Samples: 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/13/19 13:50	

LABORATORY CONTROL SAMPLE: 3494629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1030	103	80-120	

SAMPLE DUPLICATE: 3494630

Parameter	Units	10502251001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2350	2330	1	5	

SAMPLE DUPLICATE: 3494631

Parameter	Units	10502251002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2430	2520	4	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

QC Batch: 168084

Analysis Method: SM 4500-S-2 D

QC Batch Method: SM 4500-S-2 D

Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 761792

Matrix: Water

Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/11/19 16:32	

LABORATORY CONTROL SAMPLE: 761793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	96	90-110	

MATRIX SPIKE SAMPLE: 761795

Parameter	Units	10501811001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.2	0.14	68	75-125	M1

SAMPLE DUPLICATE: 761794

Parameter	Units	10501811001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0062	<0.0062		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

QC Batch: 648402 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 3488039 Matrix: Water

Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/06/19 07:20	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/06/19 07:20	
Sulfate	mg/L	0.50J	1.2	0.28	12/06/19 07:20	

LABORATORY CONTROL SAMPLE: 3488040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.7	102	90-110	
Nitrate as N	mg/L	1	0.98	98	90-110	
Sulfate	mg/L	12.5	13.6	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3488041 3488042

Parameter	Units	10501428001		10501428002		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.								
Chloride	mg/L	79.5	125	125	125	214	213	107	107	90-110	0	20	
Nitrate as N	mg/L	0.27	1	1	1	1.4	1.4	116	115	90-110	1	20	M1
Sulfate	mg/L	283	125	125	125	419	417	109	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3488043 3488044

Parameter	Units	10501428004		10501428004		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.								
Chloride	mg/L	81.1	12.5	12.5	12.5	82.6	82.1	12	8	90-110	1	20	M1
Nitrate as N	mg/L	ND	1	1	1	1.2	1.2	118	117	90-110	1	20	M1
Sulfate	mg/L	236	125	125	125	399	373	131	110	90-110	7	20	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3490037 3490038

Parameter	Units	10501811001		10501811001		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.								
Chloride	mg/L	1.6	12.5	12.5	12.5	17.1	17.2	124	125	90-110	1	20	M1
Nitrate as N	mg/L	<0.012	1	1	1	1.2	1.2	123	124	90-110	1	20	M1
Sulfate	mg/L	4.6	12.5	12.5	12.5	20.4	20.2	127	125	90-110	1	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 649659 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10501811001, 10501811002

METHOD BLANK: 3493732 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/12/19 16:54	FS

LABORATORY CONTROL SAMPLE: 3493733

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493734 3493735

Parameter	Units	10501811001		10501811002		10501811001		10501811002		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1.0	1.0	101	101	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493736 3493737

Parameter	Units	10501811002		10501811001		10501811002		10501811001		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	0.91	0.91	91	91	90-110	0	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 649867 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10501811004

METHOD BLANK: 3494685 Matrix: Water
Associated Lab Samples: 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/13/19 16:40	FS

LABORATORY CONTROL SAMPLE: 3494686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494687 3494688

Parameter	Units	10502148002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	1.3	1	1	2.5	2.5	114	115	90-110	0	20	E,M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494689 3494690

Parameter	Units	10502148003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	4.5	5	5	9.2	10.0	96	111	90-110	8	20	E,M1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 649290 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10501811001, 10501811002, 10501811004

METHOD BLANK: 3492290 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/11/19 13:26	

LABORATORY CONTROL SAMPLE: 3492291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	309	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492292 3492293

Parameter	Units	10501574001		MS		MSD		% Rec Limits	RPD	Max RPD	Qual	
		Result	Conc.	Spike Conc.	Conc.	Result	Result					% Rec
Chemical Oxygen Demand	mg/L	<17.0	250	250	259	257	102	102	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492294 3492295

Parameter	Units	10501811001		MS		MSD		% Rec Limits	RPD	Max RPD	Qual	
		Result	Conc.	Spike Conc.	Conc.	Result	Result					% Rec
Chemical Oxygen Demand	mg/L	<17.0	250	250	247	244	98	97	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

QC Batch: 181049 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10501811001, 10501811002, 10501811003, 10501811004

METHOD BLANK: 715764 Matrix: Water
Associated Lab Samples: 10501811001, 10501811002, 10501811003, 10501811004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/12/19 16:18	

LABORATORY CONTROL SAMPLE: 715765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	26.1	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715766 715767

Parameter	Units	715766		715767		% Rec Limits	RPD	Max RPD	Qual		
		10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	0.68J	25	25	27.2	27.6	106	108	80-120	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715768 715769

Parameter	Units	715768		715769		% Rec Limits	RPD	Max RPD	Qual		
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	<0.39	25	25	26.7	26.8	106	107	80-120	0	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
FS	The sample was filtered in the laboratory prior to analysis.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501811

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501811

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501811001	Atwood-GW-120619	RSK175	1395228	RSK-175	1395228
10501811002	Thorson-GW-120619	RSK175	1395228	RSK-175	1395228
10501811003	WS5-GW-120619	RSK175	1395228	RSK-175	1395228
10501811004	Randall-GW-120619	RSK175	1395228	RSK-175	1395228
10501811001	Atwood-GW-120619	EPA 3010	648770	EPA 6010D	649284
10501811002	Thorson-GW-120619	EPA 3010	648770	EPA 6010D	649284
10501811004	Randall-GW-120619	EPA 3010	648770	EPA 6010D	649284
10501811001	Atwood-GW-120619	EPA 7470A	648778	EPA 7470A	649328
10501811002	Thorson-GW-120619	EPA 7470A	648778	EPA 7470A	649328
10501811004	Randall-GW-120619	EPA 7470A	648778	EPA 7470A	649328
10501811001	Atwood-GW-120619	EPA 8260B	649358		
10501811005	TB3-120619	EPA 8260B	649358		
10501811006	TB4-120619	EPA 8260B	649358		
10501811001	Atwood-GW-120619	SM 2320B	648921		
10501811002	Thorson-GW-120619	SM 2320B	648921		
10501811004	Randall-GW-120619	SM 2320B	648921		
10501811001	Atwood-GW-120619	SM 2540C	649540		
10501811002	Thorson-GW-120619	SM 2540C	649540		
10501811004	Randall-GW-120619	SM 2540C	649847		
10501811001	Atwood-GW-120619	SM 4500-S-2 D	168084		
10501811002	Thorson-GW-120619	SM 4500-S-2 D	168084		
10501811004	Randall-GW-120619	SM 4500-S-2 D	168084		
10501811001	Atwood-GW-120619	EPA 300.0	648402		
10501811002	Thorson-GW-120619	EPA 300.0	648402		
10501811004	Randall-GW-120619	EPA 300.0	648402		
10501811001	Atwood-GW-120619	EPA 353.2	649659		
10501811002	Thorson-GW-120619	EPA 353.2	649659		
10501811004	Randall-GW-120619	EPA 353.2	649867		
10501811001	Atwood-GW-120619	EPA 410.4	649290	EPA 410.4	649341
10501811002	Thorson-GW-120619	EPA 410.4	649290	EPA 410.4	649341
10501811004	Randall-GW-120619	EPA 410.4	649290	EPA 410.4	649341
10501811001	Atwood-GW-120619	SM 5310C	181049		
10501811002	Thorson-GW-120619	SM 5310C	181049		
10501811003	WS5-GW-120619	SM 5310C	181049		
10501811004	Randall-GW-120619	SM 5310C	181049		

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt Client Name: Jacobs Project #: **WO#: 10501811**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 4638 0199 0015/16060

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 1.5, 0.7 °C Average Corrected Temp (no temp blank only): See Exceptions 1 Container

Correction Factor: TPV4 Cooler Temp Corrected w/temp blank: 1.5, 0.7 °C

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 8/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception <input type="checkbox"/>
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-3 : 1/1 1/1 1/1</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>203619</u>
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception <input type="checkbox"/>
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ Date: 12/09/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/7/2019 Results Requested By: 12/23/2019

Workorder: 10501811 Workorder Name: 1497 Freeman WA-Grain Handling

Report To		Subcontract To		Requested Analysis																
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710																		
				<div style="text-align: right; font-weight: bold;">LAB USE ONLY</div> <div style="text-align: right; font-size: 24px; font-weight: bold;">168903</div>																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HCl V/G9H	Preserved Containers					5644436 / RSK-175		5644436 / RSK-175						
1	Atwood-GW-120619	RQS	12/6/2019 08:45	10501811001	Water	6									X	X				
2	Thorson-GW-120619	PS	12/6/2019 10:45	10501811002	Water	2										X				
3	WS5-GW-120619	PS	12/6/2019 12:00	10501811003	Water	2										X				
4	Randall-GW-120619	PS	12/6/2019 14:00	10501811004	Water	2										X				
5																				

Transfers					Comments				
Released By	Date/Time	Received By	Date/Time		Methane, ethane, ethene				
<i>[Signature]</i>	12/9/19 14:30								

Cooler Temperature on Receipt: 16 °C Custody Seal: Y or N Received on Ice: Y or N Samples: Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

6 ± 0 = .6 W/A

RAD SCREEN: <0.5 mR/hr

H175

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <i>PACETWA</i>		1168903	
Cooler Received/Opened On: 12/10/19		Temperature: 6	
Received By: Tanner Wimndham			
Signature:			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No



Workorder: 10501811 Workorder Name: 1497 Freeman WA-Grain Handling Owner Received Date: 12/7/2019 Results Requested By: 12/23/2019

Report To		Subcontract To				Requested Analysis																			
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042																							
						5632354 / 5310 TOC		5632354 / 5310 TOC																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers										LAB USE ONLY									
						6																			
1	Atwood-GW-120619	RQS	12/6/2019 08:45	10501811001	Water	6																			
2	Thorson-GW-120619	PS	12/6/2019 10:45	10501811002	Water	2																			MS/MSD
3	WS5-GW-120619	PS	12/6/2019 12:00	10501811003	Water	2																			
4	Randall-GW-120619	PS	12/6/2019 14:00	10501811004	Water	2																			
5																									
Transfers												Comments													
Released By	Date/Time	Received By	Date/Time																						
<i>[Signature]</i>	12/11/19 14:30	<i>[Signature]</i>	12/10/19 13:30																						
Cooler Temperature on Receipt 1.8 °C				Custody Seal <input checked="" type="checkbox"/> or N				Received on Ice <input checked="" type="checkbox"/> or N				Samples Intact <input checked="" type="checkbox"/> or N													

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace MPLS

Project #:

WO#: 12139199

PM: RK1 Due Date: 12/23/19
CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.5 Cooler Temp Corrected °C: 1.8 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: BM 12/10/19

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: _____

Lauren Ferrier

Date: 12/10/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 20133766



20133766

of Custody



Samples were sent directly to the Subcontracting La.

Cert. Needed: Yes No

Workorder: 10501811

Workorder Name: 1497 Freeman WA-Grain Handling

Owner Received Date: 12/7/2019

Results Requested By: 12/23/2019

Report To		Subcontract To					Requested Analysis														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333																			
												5636267 / 4500 Sulfide	5636267 / 4500 Sulfide								

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers										LAB USE ONLY				
						NaOH, ZN AC	RP27													
1	Atwood-GW-120619	RQS	12/6/2019 08:45	10501811001	Water	3														MS/MSD
2	Thorson-GW-120619	PS	12/6/2019 10:45	10501811002	Water	1														
3	Randall-GW-120619	PS	12/6/2019 14:00	10501811004	Water	1														
4																				
5																				

Transfers					Released By					Date/Time					Received By					Date/Time					Comments				
1	[Signature]					12/19/19 14:05					[Signature]					12/19/19 14:05													
2	[Signature]					12-19-19 10:00					[Signature]					12-19-19 10:00													
3																													

Cooler Temperature on Receipt 1.0 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 20133766



Sample Condition Upon Re

PM: CMM

Due Date: 12/23/19

1000 Riverbend, Blvd., Suite F
St. Rose, LA 70087

CLIENT: PASI-MINN

Proje

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/10/19 CAL

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

December 16, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

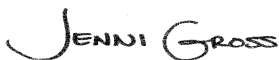
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501814

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501814001	Randall-GW-120619	Water	12/06/19 14:00	12/07/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501814001	Randall-GW-120619	EPA 8260B	DS2	83	PASI-M

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501814001	Randall-GW-120619					
EPA 8260B	Carbon tetrachloride	166	ug/L	2.5	12/12/19 11:32	
EPA 8260B	Chloroform	6.9	ug/L	4.0	12/11/19 17:36	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Randall-GW-120619 (Lab ID: 10501814001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
- Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
- tert-Amylmethyl ether

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)
- Randall-GW-120619 (Lab ID: 10501814001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane
- Randall-GW-120619 (Lab ID: 10501814001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Sample: Randall-GW-120619 **Lab ID: 10501814001** Collected: 12/06/19 14:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 17:36	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 17:36	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 17:36	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 17:36	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 17:36	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 17:36	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:36	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:36	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 17:36	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 17:36	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:36	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 17:36	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 17:36	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 17:36	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 17:36	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 17:36	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 17:36	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 17:36	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 17:36	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:36	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 17:36	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:36	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 17:36	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 17:36	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 17:36	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 17:36	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:36	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 17:36	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 17:36	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 17:36	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 17:36	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 17:36	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 17:36	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 17:36	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 17:36	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 17:36	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 17:36	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 17:36	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 17:36	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 17:36	75-15-0	
Carbon tetrachloride	166	ug/L	2.5	0.94	5		12/12/19 11:32	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:36	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 17:36	75-00-3	
Chloroform	6.9	ug/L	4.0	0.45	1		12/11/19 17:36	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 17:36	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 17:36	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Sample: **Randall-GW-120619** Lab ID: **10501814001** Collected: 12/06/19 14:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 17:36	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 17:36	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 17:36	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 17:36	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 17:36	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 17:36	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 17:36	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 17:36	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 17:36	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 17:36	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 17:36	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 17:36	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 17:36	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 17:36	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 17:36	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 17:36	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 17:36	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 17:36	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 17:36	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 17:36	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:36	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 17:36	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 17:36	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 17:36	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 17:36	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 17:36	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:36	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 17:36	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 17:36	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 17:36	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 17:36	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 17:36	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 17:36	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 17:36	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		12/11/19 17:36	17060-07-0	
Toluene-d8 (S)	111	%	75-125		1		12/11/19 17:36	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125		1		12/11/19 17:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

QC Batch: 649358 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501814001

METHOD BLANK: 3492506 Matrix: Water
Associated Lab Samples: 10501814001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501814001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501811001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	66-134	10	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	75-126	0	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501814

Parameter	Units	3492508		3492509		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30		
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30		
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30		
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30		
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30		
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30		
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30		
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30		
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30		
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30		
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30		
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30		
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30		
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30	M1	
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30		
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30		
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30	M0	
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30		
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30		
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30		
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30		
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30		
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30		
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30		
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30		
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30		
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30		
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30		
1,2-Dichloroethane-d4 (S)	%						95	99	75-136				
4-Bromofluorobenzene (S)	%						92	96	75-125				
Toluene-d8 (S)	%						106	105	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501814

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501814

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501814001	Randall-GW-120619	EPA 8260B	649358		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:
 Company: UPRR_Jacobs
 Address: 999 W. Riverside Ave, Suite 500
 Spokane, WA 99201
 Email:
 Phone: Fax:
 Requested Due Date: **10 Day Standard**

Section B

Required Project Information:
 Report To: Mark Ochsner, Brad Ostapkowicz
 Copy To: Steve Demus, Jonathan Espinoza
 Copy To: David Hodson, UPRR-Sysdat@ghd.com
 Purchase Order # PEDD# 1497
 Project Name: Freeman WA-Cenex Harvest Lease
 Project #: 1497

Section C

Invoice Information:
 Attention: Anne Walsh
 Company: UPRR
 Address: 1400 W. 52nd Ave, Denver, CO 80221
 Pace Quote: Contract# 9900758938
 Pace Project Manager: Jennifer Gross
 Pace Profile #: 36447 / 4

Page : 1 Of 1

Regulatory Agency
 State / Location
 WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)										MS/MSD Requested						
				DATE	TIME			Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y					
								Preservatives	Analyses Test	Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorus	6010 Total Iron			
1	Randall-GW-120619	WTG		12/6/19	1400	-	3																	
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

WO#: 10501814



10501814

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Short hold analyses are in bold	KESG/Jacobs	12/6/19	1500	[Signature]	12/17/19	930	1.5	Y	Y	Y
*Field filtered by client							0.7			

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Karla Savage					
SIGNATURE of SAMPLER: [Signature]					
DATE Signed: 12/6/19					

Sample Condition Upon Receipt

Client Name: Jacobs Project #: _____

WO# : 10501814

PM: JMG Due Date: 12/12/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial See Exceptions

Tracking Number: 4130 0199 6049 10060

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PEB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.5, 0.7</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>T3</u>	Cooler Temp Corrected w/temp blank: <u>1.5, 0.7</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 8/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
	pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
Comments/Resolution: _____

Project Manager Review:

Date: 120919

Note: Whenever there is a discrepancy affecting N: JENNI GROSS liance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

December 16, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

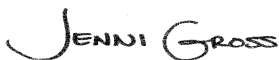
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501816

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501816

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501816001	WS5-GW-120619	Water	12/06/19 12:00	12/07/19 09:30

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501816

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501816001	WS5-GW-120619	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501816001	WS5-GW-120619					
EPA 8260B	Carbon tetrachloride	7.4	ug/L	0.50	12/11/19 18:00	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- WS5-GW-120619 (Lab ID: 10501816001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
- Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
- tert-Amylmethyl ether

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)
- WS5-GW-120619 (Lab ID: 10501816001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane
- WS5-GW-120619 (Lab ID: 10501816001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Sample: WS5-GW-120619 **Lab ID: 10501816001** Collected: 12/06/19 12:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 18:00	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 18:00	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:00	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 18:00	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:00	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:00	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:00	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:00	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:00	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 18:00	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:00	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:00	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 18:00	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 18:00	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:00	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:00	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 18:00	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 18:00	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:00	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:00	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 18:00	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:00	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 18:00	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 18:00	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 18:00	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 18:00	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:00	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 18:00	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 18:00	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 18:00	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 18:00	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 18:00	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 18:00	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:00	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:00	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 18:00	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 18:00	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 18:00	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 18:00	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 18:00	75-15-0	
Carbon tetrachloride	7.4	ug/L	0.50	0.19	1		12/11/19 18:00	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:00	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 18:00	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 18:00	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 18:00	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 18:00	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Sample: **WS5-GW-120619** Lab ID: **10501816001** Collected: 12/06/19 12:00 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 18:00	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:00	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 18:00	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 18:00	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 18:00	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:00	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:00	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 18:00	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 18:00	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 18:00	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 18:00	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 18:00	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:00	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 18:00	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 18:00	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 18:00	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:00	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 18:00	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 18:00	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 18:00	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:00	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 18:00	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:00	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 18:00	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:00	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:00	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:00	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:00	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 18:00	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 18:00	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 18:00	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:00	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 18:00	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 18:00	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 18:00	17060-07-0	
Toluene-d8 (S)	113	%	75-125		1		12/11/19 18:00	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125		1		12/11/19 18:00	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

QC Batch: 649358

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10501816001

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501816001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501816001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501811001	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	66-134	10	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	75-126	0	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Parameter	Units	3492508		3492509		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30		
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30		
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30		
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30		
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30		
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30		
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30		
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30		
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30		
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30		
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30		
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30		
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30		
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30	M1	
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30		
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30		
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30	M0	
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30		
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30		
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30		
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30		
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30		
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30		
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30		
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30		
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30		
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30		
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30		
1,2-Dichloroethane-d4 (S)	%						95	99	75-136				
4-Bromofluorobenzene (S)	%						92	96	75-125				
Toluene-d8 (S)	%						106	105	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501816

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501816001	WS5-GW-120619	EPA 8260B	649358		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
1720685

Section A

Required Client Information:

Company: Jacobs
Address: 999 W. Riverside St 500
Spokane WA 99201
Email To:
Phone: Fax:
Requested Due Date/TAT: 10 Day

Section B

Required Project Information:

Report To: Mark Ochsner, Brad Ostapkowicz
Copy To: Steve Demus, Jon Espinoza
David Hudson, UPRR-Sysdat@ghd.com
Purchase Order No.: PEDD# 1497
Project Name: Freeman WFF - Grain Handling
Project Number: 1497

Section C

Invoice Information:

Attention: Anne Walsh
Company Name: UPRR
Address: 1400 W. 52nd Ave, Denver, CO
Pace Quote Reference: contract 758938 80221
Pace Project Manager: Jennifer Gross
Pace Profile #: 36447/4

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location STATE: WA/Freeman

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test Y/N	Low level Vol by 8260	Resid	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.														
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																			
					DATE	TIME	DATE	TIME																													
1	WS5 - GW - 120619		WTG		12/6/19	1200	-	-	-	3			X																								
2																																					
3																																					
4																																					
5																																					
6																																					
7																																					
8																																					
9																																					
10																																					
11																																					
12																																					

WO# : 10501816

10501816

ADDITIONAL COMMENTS: KESE / Jacobs RELINQUISHED BY / AFFILIATION: 12/6/19 1500 ACCEPTED BY / AFFILIATION: 12/17/19 930 SAMPLE CONDITIONS: 1.5 4 4 4
0.7

SAMPLER NAME AND SIGNATURE: Keese PRINT Name of SAMPLER: Karla Sarge SIGNATURE of SAMPLER: Keese DATE Signed (MM/DD/YY): 12/06/19

Temp in °C: Received on Ice (Y/N): Custody Sealed Cooler (Y/N): Samples Intact (Y/N)

ORIGINAL



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt

Client Name: Jacobs

Project #: **WO# : 10501816**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

PM: JMG Due Date: 12/12/19
CLIENT: UPRR_Jacobs

Tracking Number: 4130 0199 6049 10060

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: 913 Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.5, 0.7</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>T3</u>	Cooler Temp Corrected w/temp blank: <u>1.5, 0.7</u> °C	

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 8/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No
Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No See Exception <input type="checkbox"/> pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
Comments/Resolution: _____

Project Manager Review: JENNI GROSS

Date: 120919

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: 80 (2)
Page 20 of 20

December 16, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

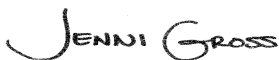
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501817

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501817

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501817001	Thorson-GW-120619	Water	12/06/19 10:45	12/07/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501817001	Thorson-GW-120619	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Thorson-GW-120619 (Lab ID: 10501817001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
 - Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
 - tert-Amylmethyl ether

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)
- Thorson-GW-120619 (Lab ID: 10501817001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane
- Thorson-GW-120619 (Lab ID: 10501817001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Sample: Thorson-GW-120619 **Lab ID: 10501817001** Collected: 12/06/19 10:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 18:23	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 18:23	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:23	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 18:23	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:23	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:23	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:23	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:23	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:23	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 18:23	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:23	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:23	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 18:23	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 18:23	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:23	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:23	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 18:23	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 18:23	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:23	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:23	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 18:23	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:23	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 18:23	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 18:23	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 18:23	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 18:23	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:23	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 18:23	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 18:23	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 18:23	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 18:23	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 18:23	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 18:23	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:23	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:23	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 18:23	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 18:23	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 18:23	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 18:23	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 18:23	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 18:23	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:23	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 18:23	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 18:23	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 18:23	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 18:23	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Sample: Thorson-GW-120619 **Lab ID: 10501817001** Collected: 12/06/19 10:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 18:23	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:23	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 18:23	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 18:23	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 18:23	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:23	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:23	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 18:23	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 18:23	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 18:23	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 18:23	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 18:23	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:23	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 18:23	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 18:23	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 18:23	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:23	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 18:23	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 18:23	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 18:23	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:23	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 18:23	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:23	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 18:23	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:23	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:23	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:23	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:23	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 18:23	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 18:23	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 18:23	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:23	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 18:23	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 18:23	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		12/11/19 18:23	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 18:23	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 18:23	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501817

QC Batch: 649358 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501817001

METHOD BLANK: 3492506 Matrix: Water
Associated Lab Samples: 10501817001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501817001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501811001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	66-134	10	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	75-126	0	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Parameter	Units	3492508		3492509		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30		
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30		
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30		
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30		
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30		
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30		
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30		
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30		
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30		
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30		
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30		
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30		
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30		
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30	M1	
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30		
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30		
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30	M0	
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30		
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30		
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30		
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30		
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30		
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30		
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30		
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30		
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30		
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30		
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30		
1,2-Dichloroethane-d4 (S)	%						95	99	75-136				
4-Bromofluorobenzene (S)	%						92	96	75-125				
Toluene-d8 (S)	%						106	105	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501817

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501817001	Thorson-GW-120619	EPA 8260B	649358		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
2146353

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: JACOBS		Report To: Mark Ochsner, Brad Ostapka		Attention: Anne Walsh	
Address: 999 W. Riverside St. 500 Spokane WA 99201		Copy To: Steve Demus, Jan Espinoza		Company Name: UPRR	
Email To:		Purchase Order No.: PEDD # 1497		Address: 1400 W. 52nd Ave, Denver, CO 80202	
Phone:		Project Name: Freeman WA - Grain Handling		Reference: Contract # 758938	
Requested Due Date/TAT: 10 Day		Project Number:		Pace Quote	
				Pace Project Manager: Jennifer Gross	
				Pace Profile #: 36447/4	
				REGULATORY AGENCY	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
				Site Location	
				STATE: WA/Freeman	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)				Resi	Pace Project No./ Lab I.D.											
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other																
					DATE	TIME	DATE	TIME																											
1	Therson-GW-120619		WT	G	12/4/19	1045	-	-	3									X																	
2																																			
3																																			
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			
11																																			
12																																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
	<i>KSJ/JACOBS</i>	<i>12/4/19</i>	<i>1500</i>	<i>MPAC</i>	<i>12/7/19</i>	<i>930</i>	<i>1.5</i>	<i>4</i>	<i>4</i>	<i>4</i>	
							<i>0.7</i>				

ORIGINAL	SAMPLER NAME AND SIGNATURE				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: <i>Isarla Savage</i>							
	SIGNATURE of SAMPLER: <i>KSJ</i>		DATE Signed (MM/DD/YY): <i>12/06/19</i>					

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt

Client Name: Jacobs

Project #: _____

WO# : 10501817

PM: JMG Due Date: 12/12/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace SpeedDee Commercial See Exceptions

Tracking Number: 4138 0199 6049 10060

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.5, 0.7</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>T3</u>	Cooler Temp Corrected w/temp blank: <u>1.5, 0.7</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 8/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> See Exception
	pH Paper Lot# <input type="checkbox"/>
	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____
Comments/Resolution: _____

Date/Time: _____ Field Data Required? Yes No

Project Manager Review:

Note: Whenever there is a discrepancy affecting No JENNI GROSS hold, incorrect preservative, out of temp, incorrect containers).

Date: 120919

ance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of

Labeled by: 80 (2)
Page 19 of 19

December 16, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

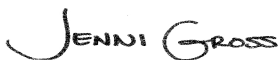
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501818

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501818001	Atwood-GW-120619	Water	12/06/19 08:45	12/07/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501818

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501818001	Atwood-GW-120619	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- Atwood-GW-120619 (Lab ID: 10501818001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
- Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
- tert-Amylmethyl ether

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 16, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Atwood-GW-120619 (Lab ID: 10501818001)
 - 1,2-Dichloroethene (Total)
- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)

- Atwood-GW-120619 (Lab ID: 10501818001)
 - Dichlorofluoromethane
- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Sample: Atwood-GW-120619 **Lab ID: 10501818001** Collected: 12/06/19 08:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 18:47	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 18:47	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:47	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 18:47	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:47	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 18:47	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:47	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:47	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:47	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 18:47	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:47	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 18:47	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 18:47	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 18:47	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:47	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 18:47	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 18:47	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 18:47	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:47	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:47	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 18:47	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:47	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 18:47	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 18:47	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 18:47	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 18:47	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:47	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 18:47	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 18:47	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 18:47	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 18:47	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 18:47	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 18:47	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:47	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 18:47	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 18:47	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 18:47	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 18:47	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 18:47	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 18:47	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 18:47	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:47	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 18:47	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 18:47	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 18:47	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 18:47	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Sample: Atwood-GW-120619 **Lab ID: 10501818001** Collected: 12/06/19 08:45 Received: 12/07/19 09:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 18:47	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:47	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 18:47	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 18:47	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 18:47	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 18:47	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:47	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 18:47	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 18:47	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 18:47	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 18:47	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 18:47	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 18:47	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 18:47	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 18:47	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 18:47	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 18:47	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 18:47	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 18:47	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 18:47	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:47	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 18:47	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 18:47	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 18:47	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 18:47	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 18:47	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:47	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 18:47	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 18:47	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 18:47	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 18:47	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 18:47	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 18:47	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 18:47	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 18:47	17060-07-0	
Toluene-d8 (S)	111	%	75-125		1		12/11/19 18:47	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		12/11/19 18:47	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501818

QC Batch: 649358 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501818001

METHOD BLANK: 3492506 Matrix: Water
Associated Lab Samples: 10501818001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501818001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501818

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501811001	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	66-134	10	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	75-126	0	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508		3492509							
Parameter	Units	10501811001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30 M1
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30 M0
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30
1,2-Dichloroethane-d4 (S)	%						95	99	75-136		
4-Bromofluorobenzene (S)	%						92	96	75-125		
Toluene-d8 (S)	%						106	105	75-125		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501818

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501818001	Atwood-GW-120619	EPA 8260B	649358		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document


The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A	Section B	Section C	Page : 1 Of 1
Required Client Information:	Required Project Information:	Invoice Information:	
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh (awalsh@up.com)	
Address: 1400 W. 52nd Ave. Denver, CO 80221	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email: awalsh@up.com	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221	Regulatory Agency
Phone: _____ Fax: _____	Purchase Order #: 1497-38-Rev0	Pace Quote: _____ Contract#: 9900758938	State / Location
Requested Due Date: 24 Hr / 3 Day / <u>10 Day</u>	Project Name: Freeman, WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross	WA / Freeman
	Project #: _____	Pace Profile #: 36447 / 1	

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	CODE	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Y/N	Requested Analysis Filtered (Y/N)	Analyzes Test	Low Level VOCs by 8260	Hold	WO#: 10501818
					DATE	TIME	DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other						
1	Atwood-GW-120619	WT	G	12/6/19	0845	-	-	3									X					
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
4th Quarter GWS event	KL SE / Jacobs	12/6/19	1500	[Signature]	12/17/19	930	1.5	Y	Y	Y
							0.7			

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:						
SIGNATURE of SAMPLER:	DATE Signed:					

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** Jacobs **Project #:** **WO#: 10501818**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 4130 0199 6049 10060

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>1.5, 0.7</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>TRUCK</u>	Cooler Temp Corrected w/temp blank: <u>1.5, 0.7</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 8/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes See Exception <input type="checkbox"/> Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 120919

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

December 20, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

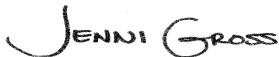
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10501944001	MW21D-GW-120919	Water	12/09/19 11:00	12/10/19 08:45
10501944002	MW20D-GW-120919	Water	12/09/19 13:30	12/10/19 08:45
10501944003	MW15D-GW-120919	Water	12/09/19 11:45	12/10/19 08:45
10501944004	TB5-120919	Water	12/09/19 07:00	12/10/19 08:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10501944001	MW21D-GW-120919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501944002	MW20D-GW-120919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501944003	MW15D-GW-120919	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10501944004	TB5-120919	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10501944001	MW21D-GW-120919					
EPA 6010D	Barium, Dissolved	68.5	ug/L	10.0	12/19/19 11:33	
EPA 6010D	Cobalt, Dissolved	0.50J	ug/L	10.0	12/19/19 11:33	
EPA 6010D	Thallium, Dissolved	6.0J	ug/L	20.0	12/19/19 11:33	
SM 2320B	Alkalinity, Total as CaCO3	182	mg/L	5.0	12/10/19 15:42	
SM 2540C	Total Dissolved Solids	203	mg/L	10.0	12/13/19 15:07	
EPA 300.0	Chloride	3.3	mg/L	1.2	12/10/19 22:54	
EPA 300.0	Sulfate	9.3	mg/L	1.2	12/10/19 22:54	
SM 5310C	Total Organic Carbon	0.48J	mg/L	1.0	12/12/19 21:42	
10501944002	MW20D-GW-120919					
EPA 6010D	Barium, Dissolved	17.0	ug/L	10.0	12/16/19 13:30	
EPA 6010D	Beryllium, Dissolved	0.23J	ug/L	5.0	12/16/19 13:30	
EPA 6010D	Cobalt, Dissolved	1.0J	ug/L	10.0	12/16/19 13:30	
EPA 6010D	Lead, Dissolved	2.2J	ug/L	10.0	12/16/19 13:30	
EPA 6010D	Vanadium, Dissolved	5.4J	ug/L	15.0	12/16/19 13:30	
EPA 8260B	Carbon tetrachloride	23.7	ug/L	0.50	12/11/19 19:35	
EPA 8260B	Chloroform	0.97J	ug/L	4.0	12/11/19 19:35	
SM 2320B	Alkalinity, Total as CaCO3	270	mg/L	5.0	12/10/19 15:49	
SM 2540C	Total Dissolved Solids	295	mg/L	10.0	12/13/19 15:07	
EPA 300.0	Chloride	7.8	mg/L	1.2	12/10/19 23:13	
EPA 300.0	Nitrate as N	1.6	mg/L	0.10	12/10/19 23:13	
EPA 300.0	Sulfate	9.8	mg/L	1.2	12/10/19 23:13	
EPA 353.2	Nitrogen, NO2 plus NO3	1.2	mg/L	0.10	12/13/19 16:29	
SM 5310C	Total Organic Carbon	0.88J	mg/L	1.0	12/12/19 22:08	
10501944003	MW15D-GW-120919					
EPA 6010D	Barium, Dissolved	12.0	ug/L	10.0	12/16/19 13:31	
EPA 6010D	Cobalt, Dissolved	1.0J	ug/L	10.0	12/16/19 13:31	
EPA 6010D	Vanadium, Dissolved	11.1J	ug/L	15.0	12/16/19 13:31	
EPA 8260B	Carbon tetrachloride	7.9	ug/L	0.50	12/11/19 19:59	
SM 2320B	Alkalinity, Total as CaCO3	179	mg/L	5.0	12/11/19 13:20	M1
SM 2540C	Total Dissolved Solids	227	mg/L	10.0	12/13/19 15:07	
EPA 300.0	Chloride	4.0	mg/L	1.2	12/10/19 23:32	
EPA 300.0	Nitrate as N	2.8	mg/L	0.10	12/10/19 23:32	
EPA 300.0	Sulfate	8.5	mg/L	1.2	12/10/19 23:32	
EPA 353.2	Nitrogen, NO2 plus NO3	2.2	mg/L	0.20	12/13/19 16:48	
SM 5310C	Total Organic Carbon	0.49J	mg/L	1.0	12/12/19 21:55	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 649497

P8: Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

- BLANK (Lab ID: 3493202)
- Copper, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 649497

P8: Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

- BLANK (Lab ID: 3493202)
- Copper, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

4 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- MW15D-GW-120919 (Lab ID: 10501944003)
- MW20D-GW-120919 (Lab ID: 10501944002)
- MW21D-GW-120919 (Lab ID: 10501944001)
- TB5-120919 (Lab ID: 10501944004)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 649358

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3492507)
 - Hexachloro-1,3-butadiene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3492508)
 - tert-Amylmethyl ether

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 20, 2019

QC Batch: 649358

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501811001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3492509)
 - p-Isopropyltoluene

Additional Comments:

Analyte Comments:

QC Batch: 649358

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3492506)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3492507)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3492508)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3492509)
 - 1,2-Dichloroethene (Total)
- MW15D-GW-120919 (Lab ID: 10501944003)
 - 1,2-Dichloroethene (Total)
- MW20D-GW-120919 (Lab ID: 10501944002)
 - 1,2-Dichloroethene (Total)
- MW21D-GW-120919 (Lab ID: 10501944001)
 - 1,2-Dichloroethene (Total)
- TB5-120919 (Lab ID: 10501944004)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3492506)
 - Dichlorofluoromethane
- LCS (Lab ID: 3492507)
 - Dichlorofluoromethane
- MS (Lab ID: 3492508)
 - Dichlorofluoromethane
- MSD (Lab ID: 3492509)
 - Dichlorofluoromethane
- MW15D-GW-120919 (Lab ID: 10501944003)
 - Dichlorofluoromethane
- MW20D-GW-120919 (Lab ID: 10501944002)
 - Dichlorofluoromethane
- MW21D-GW-120919 (Lab ID: 10501944001)
 - Dichlorofluoromethane
- TB5-120919 (Lab ID: 10501944004)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 168300

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20134277001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 763056)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 648492

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10501930001,12138997025

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3488592)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3488593)
 - Chloride
 - Nitrate as N
 - Sulfate

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3491208)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3491209)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649867

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148002,10502148003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 649867

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW21D-GW-120919 **Lab ID:** 10501944001 Collected: 12/09/19 11:00 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/13/19 13:25	12/13/19 13:25	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/13/19 13:25	12/13/19 13:25	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/13/19 13:25	12/13/19 13:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 06:01	12/19/19 11:33	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 06:01	12/19/19 11:33	7440-38-2	
Barium, Dissolved	68.5	ug/L	10.0	0.60	1	12/18/19 06:01	12/19/19 11:33	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 06:01	12/19/19 11:33	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 06:01	12/19/19 11:33	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 06:01	12/19/19 11:33	7440-47-3	
Cobalt, Dissolved	0.50J	ug/L	10.0	0.50	1	12/18/19 06:01	12/19/19 11:33	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 06:01	12/19/19 11:33	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 06:01	12/19/19 11:33	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 06:01	12/19/19 11:33	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/18/19 06:01	12/19/19 11:33	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 06:01	12/19/19 11:33	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 06:01	12/19/19 11:33	7440-22-4	
Thallium, Dissolved	6.0J	ug/L	20.0	5.5	1	12/18/19 06:01	12/19/19 11:33	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	12/18/19 06:01	12/19/19 11:33	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/18/19 06:01	12/19/19 11:33	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:15	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 19:11	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 19:11	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:11	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 19:11	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:11	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:11	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:11	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:11	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:11	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 19:11	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:11	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:11	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 19:11	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 19:11	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:11	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:11	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 19:11	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 19:11	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:11	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:11	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW21D-GW-120919 Lab ID: 10501944001 Collected: 12/09/19 11:00 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 19:11	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:11	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 19:11	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 19:11	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 19:11	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 19:11	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:11	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 19:11	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 19:11	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 19:11	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 19:11	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 19:11	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 19:11	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:11	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:11	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 19:11	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 19:11	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 19:11	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 19:11	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 19:11	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 19:11	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:11	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 19:11	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 19:11	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 19:11	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 19:11	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 19:11	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:11	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 19:11	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 19:11	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 19:11	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:11	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:11	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 19:11	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 19:11	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 19:11	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 19:11	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 19:11	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:11	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 19:11	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 19:11	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 19:11	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:11	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 19:11	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 19:11	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 19:11	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW21D-GW-120919 **Lab ID: 10501944001** Collected: 12/09/19 11:00 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:11	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 19:11	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:11	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 19:11	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:11	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:11	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:11	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:11	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 19:11	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 19:11	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 19:11	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:11	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 19:11	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 19:11	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 19:11	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/11/19 19:11	2037-26-5	
4-Bromofluorobenzene (S)	96	%	75-125		1		12/11/19 19:11	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	182	mg/L	5.0	2.0	1		12/10/19 15:42		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	203	mg/L	10.0	5.0	1		12/13/19 15:07		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/12/19 17:10	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	3.3	mg/L	1.2	0.12	1		12/10/19 22:54	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/10/19 22:54	14797-55-8	
Sulfate	9.3	mg/L	1.2	0.28	1		12/10/19 22:54	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/13/19 16:28		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:31		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	0.48J	mg/L	1.0	0.39	1		12/12/19 21:42	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW20D-GW-120919 **Lab ID: 10501944002** Collected: 12/09/19 13:30 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/13/19 13:27	12/13/19 13:27	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/13/19 13:27	12/13/19 13:27	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/13/19 13:27	12/13/19 13:27	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:30	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:30	7440-38-2	
Barium, Dissolved	17.0	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:30	7440-39-3	
Beryllium, Dissolved	0.23J	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:30	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:30	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:30	7440-47-3	
Cobalt, Dissolved	1.0J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:30	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:30	7440-50-8	
Lead, Dissolved	2.2J	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:30	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:30	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:30	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:30	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:30	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:30	7440-28-0	
Vanadium, Dissolved	5.4J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:30	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:30	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:17	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 19:35	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 19:35	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:35	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 19:35	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:35	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:35	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:35	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:35	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:35	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 19:35	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:35	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:35	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 19:35	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 19:35	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:35	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:35	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 19:35	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 19:35	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:35	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:35	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW20D-GW-120919 Lab ID: 10501944002 Collected: 12/09/19 13:30 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 19:35	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:35	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 19:35	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 19:35	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 19:35	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 19:35	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:35	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 19:35	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 19:35	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 19:35	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 19:35	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 19:35	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 19:35	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:35	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:35	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 19:35	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 19:35	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 19:35	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 19:35	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 19:35	75-15-0	
Carbon tetrachloride	23.7	ug/L	0.50	0.19	1		12/11/19 19:35	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:35	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 19:35	75-00-3	
Chloroform	0.97J	ug/L	4.0	0.45	1		12/11/19 19:35	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 19:35	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 19:35	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 19:35	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:35	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 19:35	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 19:35	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 19:35	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:35	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:35	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 19:35	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 19:35	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 19:35	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 19:35	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 19:35	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:35	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 19:35	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 19:35	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 19:35	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:35	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 19:35	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 19:35	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 19:35	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW20D-GW-120919 **Lab ID: 10501944002** Collected: 12/09/19 13:30 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:35	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 19:35	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:35	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 19:35	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:35	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:35	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:35	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:35	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 19:35	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 19:35	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 19:35	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:35	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 19:35	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 19:35	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	75-136		1		12/11/19 19:35	17060-07-0	
Toluene-d8 (S)	108	%	75-125		1		12/11/19 19:35	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 19:35	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	270	mg/L	5.0	2.0	1		12/10/19 15:49		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	295	mg/L	10.0	5.0	1		12/13/19 15:07		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/12/19 17:11	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	7.8	mg/L	1.2	0.12	1		12/10/19 23:13	16887-00-6	
Nitrate as N	1.6	mg/L	0.10	0.012	1		12/10/19 23:13	14797-55-8	
Sulfate	9.8	mg/L	1.2	0.28	1		12/10/19 23:13	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	1.2	mg/L	0.10	0.018	1		12/13/19 16:29		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:31		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	0.88J	mg/L	1.0	0.39	1		12/12/19 22:08	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW15D-GW-120919 **Lab ID: 10501944003** Collected: 12/09/19 11:45 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/13/19 13:30	12/13/19 13:30	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/13/19 13:30	12/13/19 13:30	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/13/19 13:30	12/13/19 13:30	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:31	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:31	7440-38-2	
Barium, Dissolved	12.0	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:31	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:31	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:31	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:31	7440-47-3	
Cobalt, Dissolved	1.0J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:31	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:31	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:31	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:31	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:31	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:31	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:31	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:31	7440-28-0	
Vanadium, Dissolved	11.1J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:31	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:31	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:20	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 19:59	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 19:59	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:59	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 19:59	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:59	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 19:59	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:59	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:59	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:59	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 19:59	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:59	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 19:59	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 19:59	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 19:59	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:59	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 19:59	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 19:59	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 19:59	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:59	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:59	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW15D-GW-120919 Lab ID: 10501944003 Collected: 12/09/19 11:45 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 19:59	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:59	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 19:59	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 19:59	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 19:59	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 19:59	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:59	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 19:59	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 19:59	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 19:59	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 19:59	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 19:59	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 19:59	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:59	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 19:59	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 19:59	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 19:59	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 19:59	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 19:59	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 19:59	75-15-0	
Carbon tetrachloride	7.9	ug/L	0.50	0.19	1		12/11/19 19:59	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:59	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 19:59	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 19:59	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 19:59	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 19:59	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 19:59	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:59	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 19:59	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 19:59	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 19:59	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 19:59	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:59	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 19:59	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 19:59	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 19:59	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 19:59	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 19:59	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 19:59	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 19:59	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 19:59	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 19:59	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 19:59	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 19:59	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 19:59	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 19:59	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: MW15D-GW-120919 **Lab ID:** 10501944003 Collected: 12/09/19 11:45 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level									
Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:59	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 19:59	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 19:59	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 19:59	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 19:59	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 19:59	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:59	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 19:59	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 19:59	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 19:59	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 19:59	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 19:59	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 19:59	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 19:59	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	75-136		1		12/11/19 19:59	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 19:59	2037-26-5	
4-Bromofluorobenzene (S)	90	%	75-125		1		12/11/19 19:59	460-00-4	
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	179	mg/L	5.0	2.0	1		12/11/19 13:20		M1
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Total Dissolved Solids	227	mg/L	10.0	5.0	1		12/13/19 15:07		
4500S2D Sulfide, Total									
Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/12/19 17:10	18496-25-8	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Chloride	4.0	mg/L	1.2	0.12	1		12/10/19 23:32	16887-00-6	
Nitrate as N	2.8	mg/L	0.10	0.012	1		12/10/19 23:32	14797-55-8	
Sulfate	8.5	mg/L	1.2	0.28	1		12/10/19 23:32	14808-79-8	
353.2 Nitrate + Nitrite									
Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.2	mg/L	0.20	0.035	2		12/13/19 16:48		
410.4 COD									
Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/11/19 09:39	12/11/19 13:31		
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.49J	mg/L	1.0	0.39	1		12/12/19 21:55	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: **TB5-120919** Lab ID: **10501944004** Collected: 12/09/19 07:00 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/11/19 15:36	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/11/19 15:36	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 15:36	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/11/19 15:36	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 15:36	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/11/19 15:36	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/11/19 15:36	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/11/19 15:36	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 15:36	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/11/19 15:36	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 15:36	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/11/19 15:36	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	10.0	1.7	1		12/11/19 15:36	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/11/19 15:36	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 15:36	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/11/19 15:36	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/11/19 15:36	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/11/19 15:36	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/11/19 15:36	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/11/19 15:36	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/11/19 15:36	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 15:36	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/11/19 15:36	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/11/19 15:36	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/11/19 15:36	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/11/19 15:36	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/11/19 15:36	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/11/19 15:36	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/11/19 15:36	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/11/19 15:36	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/11/19 15:36	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/11/19 15:36	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/11/19 15:36	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/11/19 15:36	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/11/19 15:36	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/11/19 15:36	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/11/19 15:36	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/11/19 15:36	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/11/19 15:36	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/11/19 15:36	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/11/19 15:36	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/11/19 15:36	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/11/19 15:36	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/11/19 15:36	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/11/19 15:36	74-87-3	
Dibromochloromethane	<0.12	ug/L	1.0	0.12	1		12/11/19 15:36	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Sample: **TB5-120919** Lab ID: **10501944004** Collected: 12/09/19 07:00 Received: 12/10/19 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level									
Analytical Method: EPA 8260B									
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/11/19 15:36	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 15:36	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/11/19 15:36	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/11/19 15:36	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/11/19 15:36	637-92-3	L2
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/11/19 15:36	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/11/19 15:36	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/11/19 15:36	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/11/19 15:36	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/11/19 15:36	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/11/19 15:36	91-20-3	
Styrene	<0.19	ug/L	1.0	0.19	1		12/11/19 15:36	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/11/19 15:36	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/11/19 15:36	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/11/19 15:36	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/11/19 15:36	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	1.0	0.23	1		12/11/19 15:36	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/11/19 15:36	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/11/19 15:36	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/11/19 15:36	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/11/19 15:36	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/11/19 15:36	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/11/19 15:36	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/11/19 15:36	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/11/19 15:36	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/11/19 15:36	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/11/19 15:36	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/11/19 15:36	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	1.0	0.11	1		12/11/19 15:36	994-05-8	L2
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/11/19 15:36	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/11/19 15:36	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/11/19 15:36	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	1.0	0.18	1		12/11/19 15:36	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/11/19 15:36	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	75-136		1		12/11/19 15:36	17060-07-0	
Toluene-d8 (S)	110	%	75-125		1		12/11/19 15:36	2037-26-5	
4-Bromofluorobenzene (S)	94	%	75-125		1		12/11/19 15:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

QC Batch: 1395928 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: R3482126-1 Matrix: Water

Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/13/19 11:49	
Ethane	ug/L	<4.07	13.0	4.07	12/13/19 11:49	
Ethene	ug/L	<4.26	13.0	4.26	12/13/19 11:49	

LABORATORY CONTROL SAMPLE & LCSD: R3482126-4 R3482126-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	60.4	65.5	89.1	96.6	85.0-115	8.10	20	
Ethane	ug/L	129	115	122	89.1	94.6	85.0-115	5.91	20	
Ethene	ug/L	127	110	117	86.6	92.1	85.0-115	6.17	20	

SAMPLE DUPLICATE: R3482126-2

Parameter	Units	L1169850-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3482126-3

Parameter	Units	L1169636-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	1000	1020	1.98	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

QC Batch: 649501 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 3493217 Matrix: Water

Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/16/19 12:10	

LABORATORY CONTROL SAMPLE: 3493218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.8	116	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493219 3493220

Parameter	Units	MS		MSD		% Rec		% Rec Limits	RPD	Max RPD	Qual	
		10502148001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec					% Rec
Mercury, Dissolved	ug/L	<0.093	5	5	5.8	5.8	116	116	80-120	1	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649497 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10501944002, 10501944003

METHOD BLANK: 3493202 Matrix: Water
Associated Lab Samples: 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/16/19 13:25	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/16/19 13:25	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/16/19 13:25	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/16/19 13:25	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/16/19 13:25	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/16/19 13:25	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/16/19 13:25	
Copper, Dissolved	ug/L	8.3J	10.0	1.2	12/16/19 13:25	P8
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/16/19 13:25	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/16/19 13:25	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/16/19 13:25	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/16/19 13:25	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/16/19 13:25	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/16/19 13:25	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/16/19 13:25	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/16/19 13:25	

LABORATORY CONTROL SAMPLE: 3493203

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1030	103	80-120	
Arsenic, Dissolved	ug/L	1000	1040	104	80-120	
Barium, Dissolved	ug/L	1000	1030	103	80-120	
Beryllium, Dissolved	ug/L	1000	1040	104	80-120	
Cadmium, Dissolved	ug/L	1000	1050	105	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1020	102	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1030	103	80-120	
Molybdenum, Dissolved	ug/L	1000	1040	104	80-120	
Nickel, Dissolved	ug/L	1000	1020	102	80-120	
Selenium, Dissolved	ug/L	1000	1060	106	80-120	
Silver, Dissolved	ug/L	500	514	103	80-120	
Thallium, Dissolved	ug/L	1000	999	100	80-120	
Vanadium, Dissolved	ug/L	1000	1010	101	80-120	
Zinc, Dissolved	ug/L	1000	1050	105	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Parameter	Units	10502814001		3493204		3493205		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1010	1030	101	103	75-125	2	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1030	1050	103	105	75-125	2	20			
Barium, Dissolved	ug/L	29.9	1000	1000	1030	1050	100	102	75-125	2	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1030	1050	103	105	75-125	2	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1010	1040	101	104	75-125	3	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	999	1020	100	102	75-125	2	20			
Cobalt, Dissolved	ug/L	0.83J	1000	1000	982	1010	98	100	75-125	2	20			
Copper, Dissolved	ug/L	6.7J	1000	1000	1000	1030	100	102	75-125	2	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	997	1020	100	102	75-125	2	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1030	1050	103	105	75-125	2	20			
Nickel, Dissolved	ug/L	<1.1	1000	1000	981	1010	98	101	75-125	3	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1030	1060	103	106	75-125	2	20			
Silver, Dissolved	ug/L	<0.40	500	500	506	517	101	103	75-125	2	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	976	1000	98	100	75-125	2	20			
Vanadium, Dissolved	ug/L	9.6J	1000	1000	1000	1030	99	102	75-125	2	20			
Zinc, Dissolved	ug/L	18.2J	1000	1000	1030	1060	101	104	75-125	3	20			

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 650417 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10501944001

METHOD BLANK: 3497454 Matrix: Water
Associated Lab Samples: 10501944001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/19/19 11:27	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/19/19 11:27	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/19/19 11:27	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/19/19 11:27	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/19/19 11:27	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/19/19 11:27	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/19/19 11:27	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/19/19 11:27	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/19/19 11:27	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/19/19 11:27	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/19/19 11:27	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/19/19 11:27	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/19/19 11:27	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/19/19 11:27	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/19/19 11:27	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/19/19 11:27	

LABORATORY CONTROL SAMPLE: 3497455

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	986	99	80-120	
Arsenic, Dissolved	ug/L	1000	998	100	80-120	
Barium, Dissolved	ug/L	1000	992	99	80-120	
Beryllium, Dissolved	ug/L	1000	1010	101	80-120	
Cadmium, Dissolved	ug/L	1000	1010	101	80-120	
Chromium, Dissolved	ug/L	1000	985	98	80-120	
Cobalt, Dissolved	ug/L	1000	987	99	80-120	
Copper, Dissolved	ug/L	1000	979	98	80-120	
Lead, Dissolved	ug/L	1000	996	100	80-120	
Molybdenum, Dissolved	ug/L	1000	1000	100	80-120	
Nickel, Dissolved	ug/L	1000	989	99	80-120	
Selenium, Dissolved	ug/L	1000	1020	102	80-120	
Silver, Dissolved	ug/L	500	494	99	80-120	
Thallium, Dissolved	ug/L	1000	975	98	80-120	
Vanadium, Dissolved	ug/L	1000	982	98	80-120	
Zinc, Dissolved	ug/L	1000	1000	100	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Parameter	Units	3497456		3497457		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Antimony, Dissolved	ug/L	<7.0	1000	1000	977	991	98	99	75-125	1	20	
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1020	1020	102	101	75-125	0	20	
Barium, Dissolved	ug/L	30.1	1000	1000	1030	1030	100	100	75-125	0	20	
Beryllium, Dissolved	ug/L	0.13J	1000	1000	1030	1030	103	103	75-125	0	20	
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1010	1010	101	101	75-125	0	20	
Chromium, Dissolved	ug/L	<0.66	1000	1000	995	998	99	100	75-125	0	20	
Cobalt, Dissolved	ug/L	0.73J	1000	1000	978	981	98	98	75-125	0	20	
Copper, Dissolved	ug/L	5.8J	1000	1000	991	1000	99	99	75-125	1	20	
Lead, Dissolved	ug/L	<2.0	1000	1000	993	998	99	100	75-125	0	20	
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	987	991	99	99	75-125	0	20	
Nickel, Dissolved	ug/L	<1.1	1000	1000	977	979	98	98	75-125	0	20	
Selenium, Dissolved	ug/L	<5.8	1000	1000	1020	1030	102	103	75-125	0	20	
Silver, Dissolved	ug/L	<0.40	500	500	500	504	100	101	75-125	1	20	
Thallium, Dissolved	ug/L	<5.5	1000	1000	975	978	97	97	75-125	0	20	
Vanadium, Dissolved	ug/L	9.5J	1000	1000	1000	1010	99	100	75-125	0	20	
Zinc, Dissolved	ug/L	12.5J	1000	1000	1010	1010	100	100	75-125	0	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649358 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003, 10501944004

METHOD BLANK: 3492506 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003, 10501944004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/11/19 12:01	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/11/19 12:01	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	10.0	1.7	12/11/19 12:01	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/11/19 12:01	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/11/19 12:01	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/11/19 12:01	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/11/19 12:01	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/11/19 12:01	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/11/19 12:01	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/11/19 12:01	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/11/19 12:01	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/11/19 12:01	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/11/19 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/11/19 12:01	
Acetone	ug/L	<9.2	20.0	9.2	12/11/19 12:01	
Acrolein	ug/L	<3.2	10.0	3.2	12/11/19 12:01	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/11/19 12:01	
Benzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/11/19 12:01	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/11/19 12:01	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/11/19 12:01	
Bromoform	ug/L	<0.80	4.0	0.80	12/11/19 12:01	
Bromomethane	ug/L	<1.8	4.0	1.8	12/11/19 12:01	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/11/19 12:01	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

METHOD BLANK: 3492506

Matrix: Water

Associated Lab Samples: 10501944001, 10501944002, 10501944003, 10501944004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Chloroethane	ug/L	<0.49	1.0	0.49	12/11/19 12:01	
Chloroform	ug/L	<0.45	4.0	0.45	12/11/19 12:01	
Chloromethane	ug/L	<0.48	4.0	0.48	12/11/19 12:01	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
cis-1,3-Dichloropropene	ug/L	<0.20	1.0	0.20	12/11/19 12:01	
Dibromochloromethane	ug/L	<0.12	1.0	0.12	12/11/19 12:01	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/11/19 12:01	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/11/19 12:01	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/11/19 12:01	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/11/19 12:01	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/11/19 12:01	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/11/19 12:01	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/11/19 12:01	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/11/19 12:01	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/11/19 12:01	
Naphthalene	ug/L	<0.48	1.0	0.48	12/11/19 12:01	
o-Xylene	ug/L	<0.16	0.50	0.16	12/11/19 12:01	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/11/19 12:01	
Styrene	ug/L	<0.19	1.0	0.19	12/11/19 12:01	
tert-Amylmethyl ether	ug/L	<0.11	1.0	0.11	12/11/19 12:01	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/11/19 12:01	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/11/19 12:01	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/11/19 12:01	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/11/19 12:01	
Toluene	ug/L	<0.083	0.50	0.083	12/11/19 12:01	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/11/19 12:01	
trans-1,3-Dichloropropene	ug/L	<0.18	1.0	0.18	12/11/19 12:01	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/11/19 12:01	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/11/19 12:01	
Trichlorofluoromethane	ug/L	<0.23	1.0	0.23	12/11/19 12:01	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/11/19 12:01	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/11/19 12:01	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/11/19 12:01	
1,2-Dichloroethane-d4 (S)	%	97	75-136		12/11/19 12:01	
4-Bromofluorobenzene (S)	%	96	75-125		12/11/19 12:01	
Toluene-d8 (S)	%	111	75-125		12/11/19 12:01	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	9.9	99	68-141	
1,1,1-Trichloroethane	ug/L	10	9.4	94	75-129	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-125	
1,1,2-Trichloroethane	ug/L	10	10.1	101	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	10	10.9	109	69-132	
1,1-Dichloroethane	ug/L	10	9.5	95	73-125	
1,1-Dichloroethene	ug/L	10	9.7	97	71-126	
1,1-Dichloropropene	ug/L	10	9.2	92	73-126	
1,2,3-Trichlorobenzene	ug/L	10	12.0	120	72-126	
1,2,3-Trichloropropane	ug/L	10	10.4	104	75-126	
1,2,4-Trichlorobenzene	ug/L	10	12.1	121	71-134	
1,2,4-Trimethylbenzene	ug/L	10	11.2	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	25	26.0	104	60-135	
1,2-Dibromoethane (EDB)	ug/L	10	10.0	100	75-129	
1,2-Dichlorobenzene	ug/L	10	11.3	113	75-129	
1,2-Dichloroethane	ug/L	10	8.5	85	75-125	
1,2-Dichloroethene (Total)	ug/L	20	19.7	99	74-125	N2
1,2-Dichloropropane	ug/L	10	9.3	93	75-125	
1,3,5-Trimethylbenzene	ug/L	10	11.3	113	75-127	
1,3-Dichlorobenzene	ug/L	10	11.2	112	75-126	
1,3-Dichloropropane	ug/L	10	10	100	75-125	
1,4-Dichlorobenzene	ug/L	10	11.0	110	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	200	224	112	72-129	
2,2,4-Trimethylpentane	ug/L	10	9.5	95	72-128	
2,2-Dichloropropane	ug/L	10	10.1	101	65-138	
2-Butanone (MEK)	ug/L	50	42.7	85	59-144	
2-Chlorotoluene	ug/L	10	10.6	106	75-127	
2-Hexanone	ug/L	50	52.9	106	73-134	
4-Chlorotoluene	ug/L	10	10.7	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	50	52.2	104	62-141	
Acetone	ug/L	50	50.5	101	60-137	
Acrolein	ug/L	100	87.7	88	60-141	
Acrylonitrile	ug/L	100	93.8	94	75-129	
Benzene	ug/L	10	8.8	88	73-125	
Bromobenzene	ug/L	10	10.4	104	73-125	
Bromochloromethane	ug/L	10	9.0	90	75-135	
Bromodichloromethane	ug/L	10	8.8	88	75-125	
Bromoform	ug/L	10	10.4	104	67-136	
Bromomethane	ug/L	10	6.9	69	30-150	
Carbon disulfide	ug/L	10	9.2	92	47-137	
Carbon tetrachloride	ug/L	10	10.2	102	75-125	
Chlorobenzene	ug/L	10	10.1	101	75-125	
Chloroethane	ug/L	10	8.1	81	63-136	
Chloroform	ug/L	10	8.8	88	73-128	
Chloromethane	ug/L	10	9.9	99	55-130	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	75-125	
cis-1,3-Dichloropropene	ug/L	10	9.0	90	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

LABORATORY CONTROL SAMPLE: 3492507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	10	9.4	94	75-125	
Dibromomethane	ug/L	10	9.5	95	75-125	
Dichlorodifluoromethane	ug/L	10	11.0	110	63-132	
Dichlorofluoromethane	ug/L	10	9.3	93	68-127	
Diisopropyl ether	ug/L	10	8.3	83	71-131	
Ethyl-tert-butyl ether	ug/L	10	7.3	73	75-125	L2
Ethylbenzene	ug/L	10	10.4	104	75-125	
Hexachloro-1,3-butadiene	ug/L	10	13.5	135	72-134	L3
Isopropylbenzene (Cumene)	ug/L	10	10.8	108	75-125	
m&p-Xylene	ug/L	20	22.1	111	75-126	
Methyl-tert-butyl ether	ug/L	10	8.0	80	75-125	
Methylene Chloride	ug/L	10	10.6	106	70-125	
n-Butylbenzene	ug/L	10	11.6	116	75-126	
n-Propylbenzene	ug/L	10	10.6	106	73-127	
Naphthalene	ug/L	10	10.4	104	63-128	
o-Xylene	ug/L	10	11.0	110	75-128	
p-Isopropyltoluene	ug/L	10	12.5	125	75-125	
sec-Butylbenzene	ug/L	10	12.0	120	75-126	
Styrene	ug/L	10	10.0	100	75-125	
tert-Amylmethyl ether	ug/L	10	6.7	67	75-125	L2
tert-Butyl Alcohol	ug/L	100	83.7	84	75-130	
tert-Butylbenzene	ug/L	10	11.4	114	75-131	
Tetrachloroethene	ug/L	10	11.7	117	74-125	
Tetrahydrofuran	ug/L	100	87.6	88	64-138	
Toluene	ug/L	10	10.6	106	74-125	
trans-1,2-Dichloroethene	ug/L	10	10.3	103	68-128	
trans-1,3-Dichloropropene	ug/L	10	10	100	75-125	
trans-1,4-Dichloro-2-butene	ug/L	25	24.8	99	60-127	
Trichloroethene	ug/L	10	10.1	101	75-127	
Trichlorofluoromethane	ug/L	10	11.2	112	72-133	
Vinyl acetate	ug/L	10	8.9J	89	61-129	
Vinyl chloride	ug/L	10	10.6	106	75-128	
Xylene (Total)	ug/L	30	33.1	110	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			93	75-125	
Toluene-d8 (S)	%			108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492508 3492509

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10501811001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	10	10	10.5	10.7	105	107	75-140	2	30		
1,1,1-Trichloroethane	ug/L	<0.14	10	10	9.6	9.7	96	97	74-136	2	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	10	10	9.7	10.7	97	107	66-134	10	30		
1,1,2-Trichloroethane	ug/L	<0.18	10	10	10.7	10.8	107	108	75-126	0	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508			3492509							
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	10	10	13.0	11.9	130	119	65-146	9	30	
1,1-Dichloroethane	ug/L	<0.17	10	10	10.6	10.2	106	102	68-132	4	30	
1,1-Dichloroethene	ug/L	<0.16	10	10	11.2	10	112	100	66-139	11	30	
1,1-Dichloropropene	ug/L	<0.20	10	10	9.8	9.7	98	97	67-134	1	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	10	10	11.9	12.5	119	125	67-129	5	30	
1,2,3-Trichloropropane	ug/L	<0.26	10	10	9.8	11.2	98	112	69-128	13	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	10	10	12.5	12.8	125	128	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	10	10	12.1	12.8	121	128	71-133	6	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	25	25	24.2	27.4	97	110	54-138	12	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	10	10	9.8	10.4	98	104	68-125	6	30	
1,2-Dichlorobenzene	ug/L	<0.14	10	10	11.3	12.4	113	124	74-136	9	30	
1,2-Dichloroethane	ug/L	<0.22	10	10	8.4	8.8	84	88	68-125	6	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	20	20	19.7	20.1	98	100	71-126	2	30	N2
1,2-Dichloropropane	ug/L	<0.16	10	10	9.5	9.2	95	92	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	10	10	12.0	12.8	120	128	68-137	7	30	
1,3-Dichlorobenzene	ug/L	<0.16	10	10	12.0	12.6	120	126	75-131	5	30	
1,3-Dichloropropane	ug/L	<0.070	10	10	10.2	10.5	102	105	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	10	10	11.2	12.1	112	121	74-126	7	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	200	204	194J	102	97	68-125		30	
2,2,4-Trimethylpentane	ug/L	<0.19	10	10	11.0	9.6	110	96	54-129	13	30	
2,2-Dichloropropane	ug/L	<0.17	10	10	10.2	10	102	100	69-139	2	30	
2-Butanone (MEK)	ug/L	<0.99	50	50	33.5	38.2	67	76	54-144	13	30	
2-Chlorotoluene	ug/L	<0.16	10	10	11.0	12.2	110	122	75-134	10	30	
2-Hexanone	ug/L	<0.88	50	50	43.9	49.8	88	100	58-137	13	30	
4-Chlorotoluene	ug/L	<0.13	10	10	11.3	11.9	113	119	72-133	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	50	50	50.0	52.1	100	104	60-129	4	30	
Acetone	ug/L	<9.2	50	50	37.4	41.0	75	82	62-132	9	30	
Acrolein	ug/L	<3.2	100	100	95.0	102	95	102	30-150	7	30	
Acrylonitrile	ug/L	<0.91	100	100	91.8	97.0	92	97	68-125	6	30	
Benzene	ug/L	<0.10	10	10	9.2	9.0	92	90	68-125	2	30	
Bromobenzene	ug/L	<0.21	10	10	10.6	11.5	106	115	73-126	8	30	
Bromochloromethane	ug/L	<0.27	10	10	9.1	9.5	91	95	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	10	10	9.3	9.2	93	92	74-125	1	30	
Bromoform	ug/L	<0.80	10	10	10.2	10.8	102	108	64-134	5	30	
Bromomethane	ug/L	<1.8	10	10	8.1	9.1	81	91	30-150	11	30	
Carbon disulfide	ug/L	<0.19	10	10	10.4	9.0	104	90	43-147	14	30	
Carbon tetrachloride	ug/L	<0.19	10	10	10.8	11.2	108	112	71-143	3	30	
Chlorobenzene	ug/L	<0.17	10	10	10.7	10.7	107	107	75-125	0	30	
Chloroethane	ug/L	<0.49	10	10	9.9	9.8	99	98	75-129	1	30	
Chloroform	ug/L	<0.45	10	10	8.6	8.9	86	89	66-132	3	30	
Chloromethane	ug/L	<0.48	10	10	10.2	11.5	102	115	53-137	12	30	
cis-1,2-Dichloroethene	ug/L	<0.15	10	10	8.7	9.3	87	93	67-133	7	30	
cis-1,3-Dichloropropene	ug/L	<0.20	10	10	8.8	8.8	88	88	66-125	0	30	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3492508		3492509								
Parameter	Units	10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dibromochloromethane	ug/L	<0.12	10	10	9.4	9.7	94	97	62-132	2	30	
Dibromomethane	ug/L	<0.16	10	10	10.4	9.8	104	98	67-125	6	30	
Dichlorodifluoromethane	ug/L	<0.23	10	10	11.9	13.3	119	133	71-142	12	30	
Dichlorofluoromethane	ug/L	<0.14	10	10	9.6	11.4	96	114	70-131	17	30	
Diisopropyl ether	ug/L	<0.13	10	10	9.0	9.4	90	94	63-131	4	30	
Ethyl-tert-butyl ether	ug/L	<0.18	10	10	7.3	7.5	73	75	66-128	3	30	
Ethylbenzene	ug/L	<0.14	10	10	11.2	11.6	112	116	74-126	3	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	10	10	14.1	12.3	141	123	68-143	14	30	
Isopropylbenzene (Cumene)	ug/L	<0.18	10	10	11.7	12.3	117	123	74-130	6	30	
m&p-Xylene	ug/L	<0.31	20	20	23.8	24.6	119	123	69-132	4	30	
Methyl-tert-butyl ether	ug/L	<0.16	10	10	8.0	8.5	80	85	65-131	5	30	
Methylene Chloride	ug/L	<0.98	10	10	10.2	9.9	102	99	57-125	3	30	
n-Butylbenzene	ug/L	<0.24	10	10	12.5	12.5	125	125	71-131	0	30	
n-Propylbenzene	ug/L	<0.10	10	10	11.5	12.6	115	126	67-138	9	30	
Naphthalene	ug/L	<0.48	10	10	9.8	11.3	98	113	60-130	14	30	
o-Xylene	ug/L	<0.16	10	10	11.6	12.0	116	120	69-131	3	30	
p-Isopropyltoluene	ug/L	<0.15	10	10	13.1	13.4	131	134	72-133	2	30	M1
sec-Butylbenzene	ug/L	<0.15	10	10	13.1	13.2	131	132	73-134	1	30	
Styrene	ug/L	<0.19	10	10	10.4	10.6	104	106	72-125	2	30	
tert-Amylmethyl ether	ug/L	<0.11	10	10	6.6	6.9	66	69	67-125	4	30	M0
tert-Butyl Alcohol	ug/L	<1.2	100	100	104	85.0	104	85	64-137	20	30	
tert-Butylbenzene	ug/L	<0.15	10	10	12.5	13.0	125	130	70-143	4	30	
Tetrachloroethene	ug/L	<0.17	10	10	12.8	12.7	128	127	72-129	1	30	
Tetrahydrofuran	ug/L	<2.2	100	100	80.4	90.2	80	90	66-128	12	30	
Toluene	ug/L	<0.083	10	10	11.2	11.0	112	110	73-125	2	30	
trans-1,2-Dichloroethene	ug/L	<0.12	10	10	11.0	10.8	110	108	62-137	2	30	
trans-1,3-Dichloropropene	ug/L	<0.18	10	10	10.2	9.8	102	98	61-136	4	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	25	25	21.5	24.0	86	96	45-128	11	30	
Trichloroethene	ug/L	<0.15	10	10	10.9	10.5	109	105	74-132	4	30	
Trichlorofluoromethane	ug/L	<0.23	10	10	11.7	13.0	117	130	75-139	11	30	
Vinyl acetate	ug/L	<1.1	10	10	8.7J	9.1J	87	91	51-135		30	
Vinyl chloride	ug/L	<0.092	10	10	11.4	12.4	114	124	68-146	9	30	
Xylene (Total)	ug/L	<0.31	30	30	35.4	36.6	118	122	67-137	3	30	
1,2-Dichloroethane-d4 (S)	%						95	99	75-136			
4-Bromofluorobenzene (S)	%						92	96	75-125			
Toluene-d8 (S)	%						106	105	75-125			

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649140 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10501944001, 10501944002

METHOD BLANK: 3491577 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	2.3J	5.0	2.0	12/10/19 13:15	

LABORATORY CONTROL SAMPLE & LCSD: 3491578 3491579

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.2	42.3	105	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491580 3491581

Parameter	Units	10501930001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	36.8	40	40	77.0	77.3	101	101	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491582 3491583

Parameter	Units	10501930002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	37.1	40	40	77.8	77.4	102	101	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

QC Batch: 649389

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 10501944003

METHOD BLANK: 3492625

Matrix: Water

Associated Lab Samples: 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2.4J	5.0	2.0	12/11/19 13:00	

LABORATORY CONTROL SAMPLE & LCSD: 3492626

3492627

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.4	42.4	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492628

3492629

Parameter	Units	10502054006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	ND	40	40	42.7	42.7	105	105	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649848 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 3494632 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/13/19 15:07	

LABORATORY CONTROL SAMPLE: 3494633

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1000	100	80-120	

SAMPLE DUPLICATE: 3494634

Parameter	Units	10502287002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	805	771	4	5	

SAMPLE DUPLICATE: 3494635

Parameter	Units	10502291001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	875	877	0	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 168300 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 763053 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/12/19 16:47	

LABORATORY CONTROL SAMPLE: 763054

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.18	90	90-110	

MATRIX SPIKE SAMPLE: 763056

Parameter	Units	20134277001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.071	36	75-125	M1

SAMPLE DUPLICATE: 763055

Parameter	Units	20134277001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0062		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 648492 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 3488590 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/10/19 15:34	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/10/19 15:34	
Sulfate	mg/L	0.52J	1.2	0.28	12/10/19 15:34	

LABORATORY CONTROL SAMPLE: 3488591

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.7	102	90-110	
Nitrate as N	mg/L	1	0.98	98	90-110	
Sulfate	mg/L	12.5	13.3	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3488592 3488593

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	41.4	12.5	12.5	50.5	50.9	73	76	90-110	1	20 M1
Nitrate as N	mg/L	0.18	1	1	1.4	1.4	121	122	90-110	1	20 M1
Sulfate	mg/L	5.1	12.5	12.5	20.7	20.9	125	127	90-110	1	20 M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3491208 3491209

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result						
Chloride	mg/L	27.3J	625	625	821	819	127	127	90-110	0	20 M6
Nitrate as N	mg/L	2.2J	50	50	63.2	63.0	122	122	90-110	0	20 M6
Sulfate	mg/L	1810	625	625	2640	2650	132	133	90-110	0	20 M6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649867 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 3494685 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/13/19 16:40	FS

LABORATORY CONTROL SAMPLE: 3494686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494687 3494688

Parameter	Units	10502148002		10502148003		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	1.3	1	1	2.5	2.5	114	115	90-110	0	20	E,M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494689 3494690

Parameter	Units	10502148003		10502148004		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	4.5	5	5	9.2	10.0	96	111	90-110	8	20	E,M1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 649290 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 3492290 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/11/19 13:26	

LABORATORY CONTROL SAMPLE: 3492291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	309	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492292 3492293

Parameter	Units	10501574001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	259	257	102	102	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492294 3492295

Parameter	Units	10501811001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	247	244	98	97	90-110	1	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

QC Batch: 181049 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10501944001, 10501944002, 10501944003

METHOD BLANK: 715764 Matrix: Water
Associated Lab Samples: 10501944001, 10501944002, 10501944003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/12/19 16:18	

LABORATORY CONTROL SAMPLE: 715765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	26.1	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715766 715767

Parameter	Units	715766		715767		% Rec Limits	RPD	Max RPD	Qual		
		10501574001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	0.68J	25	25	27.2	27.6	106	108	80-120	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 715768 715769

Parameter	Units	715768		715769		% Rec Limits	RPD	Max RPD	Qual		
		10501811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Total Organic Carbon	mg/L	<0.39	25	25	26.7	26.8	106	107	80-120	0	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10501944

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
 ND - Not Detected at or above adjusted reporting limit.
 TNTC - Too Numerous To Count
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 PQL - Practical Quantitation Limit.
 RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
 S - Surrogate
 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
 TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
FS	The sample was filtered in the laboratory prior to analysis.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
P8	Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10501944

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10501944001	MW21D-GW-120919	RSK175	1395928	RSK-175	1395928
10501944002	MW20D-GW-120919	RSK175	1395928	RSK-175	1395928
10501944003	MW15D-GW-120919	RSK175	1395928	RSK-175	1395928
10501944001	MW21D-GW-120919	EPA 3010	650417	EPA 6010D	650706
10501944002	MW20D-GW-120919	EPA 3010	649497	EPA 6010D	649818
10501944003	MW15D-GW-120919	EPA 3010	649497	EPA 6010D	649818
10501944001	MW21D-GW-120919	EPA 7470A	649501	EPA 7470A	649920
10501944002	MW20D-GW-120919	EPA 7470A	649501	EPA 7470A	649920
10501944003	MW15D-GW-120919	EPA 7470A	649501	EPA 7470A	649920
10501944001	MW21D-GW-120919	EPA 8260B	649358		
10501944002	MW20D-GW-120919	EPA 8260B	649358		
10501944003	MW15D-GW-120919	EPA 8260B	649358		
10501944004	TB5-120919	EPA 8260B	649358		
10501944001	MW21D-GW-120919	SM 2320B	649140		
10501944002	MW20D-GW-120919	SM 2320B	649140		
10501944003	MW15D-GW-120919	SM 2320B	649389		
10501944001	MW21D-GW-120919	SM 2540C	649848		
10501944002	MW20D-GW-120919	SM 2540C	649848		
10501944003	MW15D-GW-120919	SM 2540C	649848		
10501944001	MW21D-GW-120919	SM 4500-S-2 D	168300		
10501944002	MW20D-GW-120919	SM 4500-S-2 D	168300		
10501944003	MW15D-GW-120919	SM 4500-S-2 D	168300		
10501944001	MW21D-GW-120919	EPA 300.0	648492		
10501944002	MW20D-GW-120919	EPA 300.0	648492		
10501944003	MW15D-GW-120919	EPA 300.0	648492		
10501944001	MW21D-GW-120919	EPA 353.2	649867		
10501944002	MW20D-GW-120919	EPA 353.2	649867		
10501944003	MW15D-GW-120919	EPA 353.2	649867		
10501944001	MW21D-GW-120919	EPA 410.4	649290	EPA 410.4	649341
10501944002	MW20D-GW-120919	EPA 410.4	649290	EPA 410.4	649341
10501944003	MW15D-GW-120919	EPA 410.4	649290	EPA 410.4	649341
10501944001	MW21D-GW-120919	SM 5310C	181049		
10501944002	MW20D-GW-120919	SM 5310C	181049		
10501944003	MW15D-GW-120919	SM 5310C	181049		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:

Section B
Required Project Information:

Section C
Invoice Information:

Page: 1 of 1
2106976

Company: Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh
Address: 999 W. Riverside St 500 Spokane, WA 99201	Copy To: Steve Dennis, Jan Espinoza	Company Name: UPRR
Email To:	Purchase Order No.: PEDD # 1497	Address: 1400 W. 52nd Ave, Denver CO 80202
Phone:	Project Name: Freeman WA - Grain Handling Facility	Pace Quote Reference:
Requested Due Date/TAT: 10 Day	Project Number: 1497	Pace Project Manager: Jennifer Gross
		Pace Profile #: 36447 #1

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location:
STATE: **WA/Freeman**

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -.) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)								
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH + Zn Acetate	Na ₂ S ₂ O ₃	Methanol	Other	Low level / 100 ug/Ly 8260	10010 / 7470 TAL Dissolved				12.20 Alkalinity metab	Chloride Safety Nitrate 3020	2540 TDS	TBC 5310	Sulfide 4.500	Methane Ethane Ethene	200 410.4 #52175	Nitrite + Nitrate 3532
					DATE	TIME	DATE	TIME																							
1	MWZID-GW-120919		WT	G	12/9/19	1100			13	X	X	X	X	X																	
2	MWZOD-GW-120919		WT	G	12/9/19	1330			13	X	X	X	X	X																	
3	MWISD-GW-120919		WT	G	12/9/19	1145			13	X	X	X	X	X																	
4	TBS-120919		WT	G	12/9/19	0700			3				X																		
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

4th Quarter Groundwater Sampling


W0#: 10501944



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Field Filtered	<i>Kel Jacobs</i>	12/9/19	1300	<i>[Signature]</i>	12-10-19	8:45	0.3 1.2

ORIGINAL	SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER:	<i>Karla Savapp</i>					
	SIGNATURE of SAMPLER:	<i>[Signature]</i>	DATE Signed (MM/DD/YY): 12/09/19				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** Jacobs **Project #:** **WO# : 10501944**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 74759400 8381

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>10.1</u>	Cooler Temp Corrected w/temp blank: <u>0.3</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 12.10.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-3</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ 1/1 <input checked="" type="checkbox"/> H ₂ SO ₄ 1/1 <input checked="" type="checkbox"/> Zinc Acetate 1/1
Exceptions: <u>VOA</u> , Coliform, <u>TOC</u> , DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS JMG 121019 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Extra labels present on soil VOA or WIDRO containers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>203610</u> <u>236659</u> <u>1004281</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>236659</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 121019

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: DM (2) Page 54 of 60

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10501944 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/10/2019 Results Requested By: 12/24/2019

Report To	Subcontract To	Requested Analysis											
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710												

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers						5644436 / RSK-175	LAB USE ONLY
						FC	VG	9	H				
1	MW21D-GW-120919	PS	12/9/2019 11:00	10501944001	Water	2						X	1169537
2	MW20D-GW-120919	PS	12/9/2019 13:30	10501944002	Water	2						X	01
3	MW15D-GW-120919	PS	12/9/2019 11:45	10501944003	Water	2						X	02
4													03
5													

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	M. Pace	12/10/19 17:20	[Signature]	12/11/19 09:00	Methane, Ethane, Ethene
2					
3					

Cooler Temperature on Receipt 6.3 ± 0.1 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

0.4 μS

RAD SCREEN: <0.5 mR/hr

H206

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <i>PACETwt</i>	1169537
Cooler Received/Opened On: 12/11/19 Temperature: .4	
Received By: Tanner Windham	
Signature: <i>[Signature]</i>	

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Chain of Custody

WO#: 12139238



12139238

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/10/2019 Results Requested By: 12/24/2019

Workorder: 10501944

Workorder Name: Freeman WA-Cenex Harvest Lease

Report To		Subcontract To				Requested Analysis																												
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				<div style="display: flex; justify-content: space-between;"> 5632354 / 5310 TOC LAB USE ONLY </div>																												
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix													Preserved Containers																
																		H2SO4																
1	MW21D-GW-120919	PS	12/9/2019 11:00	10501944001	Water													2																
2	MW20D-GW-120919	PS	12/9/2019 13:30	10501944002	Water													2																
3	MW15D-GW-120919	PS	12/9/2019 11:45	10501944003	Water													2																
4																																		
5																																		

Transfers					Comments
Released By	Date/Time	Received By	Date/Time		
JU PACE	12/19/19	B Mathews	12/11/19	1310	

Cooler Temperature on Receipt: 1.5 °C Custody Seal: or N Received on Ice: or N Samples Intact: or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



Document Name: Sample Condition Upon Receipt Form

Document Revised: 30Apr2019 Page 1 of 1

Document No.: F-VM-C-001-rev.13

Issuing Authority: Pace Virginia Minnesota Quality Office

WO#: 12139238

PM: RK1

Due Date: 12/24/19

CLIENT: PACE MPLS

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

Courier: [x] Fed Ex [] UPS [] USPS [] Client [] Commercial [] Pace [] Other:

Tracking Number:

Custody Seal on Cooler/Box Present? [x] Yes [] No Seals Intact? [x] Yes [] No Optional: Proj. Due Date: Proj. Name:

Packing Material: [x] Bubble Wrap [] Bubble Bags [] None [] Other: Temp Blank? [x] Yes [] No

Thermometer Used: [x] 140792808 Type of Ice: [x] Wet [] Blue [] None [] Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.2 Cooler Temp Corrected °C: 1.5 Biological Tissue Frozen? [] Yes [] No [x] NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: BM 12/11/19

Comments:

Table with 16 rows of inspection items and checkboxes. Items include Chain of Custody Present, Samples Arrived within Hold Time, Containers Intact, etc.

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? [] Yes [] No

Person Contacted: Date/Time:

Comments/Resolution:

FECAL WAIVER ON FILE Y

TEMPERATURE WAIVER ON FILE Y N

Lavenna Ferrier

Project Manager Review: Date: 12/11/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.


State Of Origin: WA

Cert. Needed: Yes No



Workorder: 10501944 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/10/2019 Results Requested By: 12/24/2019

Report To		Subcontract To				Requested Analysis														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333				<div style="text-align: right; font-size: 24px; font-weight: bold;">WO#: 20134220</div>  <div style="text-align: center; font-weight: bold;">20134220</div>														
						5636267 / 4500 Sulfide														
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				LAB USE ONLY										
1	MW21D-GW-120919	PS	12/9/2019 11:00	10501944001	Water	1														
2	MW20D-GW-120919	PS	12/9/2019 13:30	10501944002	Water	1														
3	MW15D-GW-120919	PS	12/9/2019 11:45	10501944003	Water	1														
4																				
5																				
Transfers		Released By	Date/Time	Received By		Date/Time		Comments												
1		JL PACE	12-10-19 1540																	
2		Fred	12-11-19 0830	J. Smith / Pac		12-11-19 0830														
3																				
Cooler Temperature on Receipt			4.0 °C	Custody Seal		(Y) or N	Received on Ice		(Y) or N	Samples Intact										(Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon

WO#: 20134220

PM: CMM

Due Date: 12/24/19

CLIENT: PASI-MINN

Pr

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/12/19 [initials]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present??	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

December 23, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

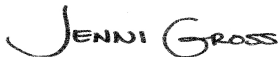
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502148001	Silva-GW-121019	Water	12/10/19 08:30	12/11/19 08:50
10502148002	WS5-GW-121019	Water	12/10/19 09:00	12/11/19 08:50
10502148003	MW19D-GW-121019	Water	12/10/19 11:00	12/11/19 08:50
10502148004	MW28-GW-121019	Water	12/10/19 11:45	12/11/19 08:50
10502148005	MW27-GW-121019	Water	12/10/19 12:30	12/11/19 08:50
10502148006	MW14D-GW-121019	Water	12/10/19 13:45	12/11/19 08:50
10502148007	MW3D-GW-121019	Water	12/10/19 14:30	12/11/19 08:50
10502148008	TB6,7,8-121019	Water	12/10/19 08:00	12/11/19 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
10502148001	Silva-GW-121019	RSK-175	DAH	4	PAN		
		EPA 6010D	DM	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		SM 2320B	SH4	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		
		EPA 353.2	JFP	1	PASI-M		
		EPA 410.4	KEO	1	PASI-M		
		SM 5310C	ZJT	1	PASI-V		
10502148002	WS5-GW-121019	EPA 6010D	DM	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		SM 2320B	SH4	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		
		EPA 353.2	JFP	1	PASI-M		
		EPA 410.4	KEO	1	PASI-M		
		10502148003	MW19D-GW-121019	RSK-175	DAH	4	PAN
				EPA 6010D	DM	16	PASI-M
EPA 7470A	LMW			1	PASI-M		
EPA 8260B	AEZ			83	PASI-M		
SM 2320B	SH4			1	PASI-M		
SM 2540C	EPT			1	PASI-M		
SM 4500-S-2 D	PNT			1	PASI-N		
EPA 300.0	KEO			3	PASI-M		
EPA 353.2	JFP			1	PASI-M		
EPA 410.4	KEO			1	PASI-M		
10502148004	MW28-GW-121019	SM 5310C	ZJT	1	PASI-V		
		RSK-175	DAH	4	PAN		
		EPA 6010D	DM	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		EPA 8260B	AEZ	83	PASI-M		
		SM 2320B	SH4	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
10502148005	MW27-GW-121019	EPA 353.2	JFP	1	PASI-M		
		EPA 410.4	KEO	1	PASI-M		
		SM 5310C	ZJT	1	PASI-V		
		RSK-175	DAH	4	PAN		
		EPA 6010D	DM	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		EPA 8260B	DS2	83	PASI-M		
		SM 2320B	SH4	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		
		EPA 353.2	JFP	1	PASI-M		
		10502148006	MW14D-GW-121019	EPA 410.4	KEO	1	PASI-M
SM 5310C	ZJT			1	PASI-V		
RSK-175	DAH			4	PAN		
EPA 6010D	DM			16	PASI-M		
EPA 7470A	LMW			1	PASI-M		
EPA 8260B	AEZ			83	PASI-M		
SM 2320B	SH4			1	PASI-M		
SM 2540C	EPT			1	PASI-M		
SM 4500-S-2 D	PNT			1	PASI-N		
EPA 300.0	KEO			3	PASI-M		
EPA 353.2	JFP			1	PASI-M		
10502148007	MW3D-GW-121019			EPA 410.4	KEO	1	PASI-M
				SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	4	PAN		
		EPA 6010D	DM	16	PASI-M		
		EPA 7470A	LMW	1	PASI-M		
		EPA 8260B	AEZ	83	PASI-M		
		SM 2320B	SH4	1	PASI-M		
		SM 2540C	EPT	1	PASI-M		
		SM 4500-S-2 D	PNT	1	PASI-N		
		EPA 300.0	KEO	3	PASI-M		
		EPA 353.2	JFP	1	PASI-M		
		10502148008	TB6,7,8-121019	EPA 410.4	KEO	1	PASI-M
				SM 5310C	ZJT	1	PASI-V
EPA 8260B	AEZ			83	PASI-M		

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10502148001	Silva-GW-121019					
EPA 6010D	Barium, Dissolved	30.1	ug/L	10.0	12/19/19 11:35	
EPA 6010D	Beryllium, Dissolved	0.13J	ug/L	5.0	12/19/19 11:35	
EPA 6010D	Cobalt, Dissolved	0.73J	ug/L	10.0	12/19/19 11:35	
EPA 6010D	Copper, Dissolved	5.8J	ug/L	10.0	12/19/19 11:35	
EPA 6010D	Vanadium, Dissolved	9.5J	ug/L	15.0	12/19/19 11:35	
EPA 6010D	Zinc, Dissolved	12.5J	ug/L	20.0	12/19/19 11:35	
SM 2320B	Alkalinity, Total as CaCO3	167	mg/L	5.0	12/12/19 16:56	
SM 2540C	Total Dissolved Solids	329	mg/L	10.0	12/17/19 15:41	D6
EPA 300.0	Chloride	2.9	mg/L	1.2	12/11/19 17:44	M1
EPA 300.0	Nitrate as N	3.0	mg/L	0.10	12/11/19 17:44	M1
EPA 300.0	Sulfate	13.4	mg/L	1.2	12/11/19 17:44	
EPA 353.2	Nitrogen, NO2 plus NO3	2.6	mg/L	0.50	12/19/19 16:48	
SM 5310C	Total Organic Carbon	0.58J	mg/L	1.0	12/18/19 18:13	
10502148002	WS5-GW-121019					
EPA 6010D	Barium, Dissolved	56.6	ug/L	10.0	12/19/19 11:48	
EPA 6010D	Beryllium, Dissolved	0.21J	ug/L	5.0	12/19/19 11:48	
EPA 6010D	Cobalt, Dissolved	2.3J	ug/L	10.0	12/19/19 11:48	
EPA 6010D	Copper, Dissolved	10.8	ug/L	10.0	12/19/19 11:48	
EPA 6010D	Lead, Dissolved	2.8J	ug/L	10.0	12/19/19 11:48	
EPA 6010D	Nickel, Dissolved	28.1	ug/L	20.0	12/19/19 11:48	
EPA 6010D	Vanadium, Dissolved	17.1	ug/L	15.0	12/19/19 11:48	
EPA 6010D	Zinc, Dissolved	52.1	ug/L	20.0	12/19/19 11:48	
SM 2320B	Alkalinity, Total as CaCO3	191	mg/L	5.0	12/12/19 17:57	
SM 2540C	Total Dissolved Solids	254	mg/L	10.0	12/17/19 15:41	
EPA 300.0	Chloride	6.6	mg/L	1.2	12/11/19 19:01	M1
EPA 300.0	Nitrate as N	1.6	mg/L	0.10	12/11/19 19:01	
EPA 300.0	Sulfate	8.7	mg/L	1.2	12/11/19 19:01	M1
EPA 353.2	Nitrogen, NO2 plus NO3	1.3	mg/L	0.10	12/13/19 16:33	M1
10502148003	MW19D-GW-121019					
EPA 6010D	Barium, Dissolved	11.0	ug/L	10.0	12/16/19 13:48	
EPA 6010D	Beryllium, Dissolved	0.60J	ug/L	5.0	12/16/19 13:48	
EPA 6010D	Cadmium, Dissolved	0.64J	ug/L	3.0	12/16/19 13:48	
EPA 6010D	Cobalt, Dissolved	1.6J	ug/L	10.0	12/16/19 13:48	
EPA 6010D	Lead, Dissolved	2.7J	ug/L	10.0	12/16/19 13:48	
EPA 6010D	Silver, Dissolved	0.54J	ug/L	10.0	12/16/19 13:48	
EPA 6010D	Vanadium, Dissolved	7.2J	ug/L	15.0	12/16/19 13:48	
EPA 8260B	Carbon disulfide	0.77J	ug/L	1.0	12/18/19 01:46	
EPA 8260B	Carbon tetrachloride	433	ug/L	5.0	12/20/19 05:09	
EPA 8260B	Chloroform	34.9	ug/L	4.0	12/18/19 01:46	
SM 2320B	Alkalinity, Total as CaCO3	176	mg/L	5.0	12/12/19 18:03	
SM 2540C	Total Dissolved Solids	302	mg/L	10.0	12/17/19 15:41	
EPA 300.0	Chloride	11.2	mg/L	1.2	12/11/19 20:36	
EPA 300.0	Nitrate as N	5.4	mg/L	0.10	12/11/19 20:36	
EPA 300.0	Sulfate	43.6	mg/L	1.2	12/11/19 20:36	
EPA 353.2	Nitrogen, NO2 plus NO3	4.5	mg/L	0.50	12/13/19 16:49	M1
SM 5310C	Total Organic Carbon	0.78J	mg/L	1.0	12/18/19 18:52	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502148004	MW28-GW-121019					
EPA 6010D	Barium, Dissolved	17.8	ug/L	10.0	12/16/19 13:50	
EPA 6010D	Cobalt, Dissolved	0.98J	ug/L	10.0	12/16/19 13:50	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	12/16/19 13:50	
EPA 6010D	Vanadium, Dissolved	9.0J	ug/L	15.0	12/16/19 13:50	
EPA 8260B	Carbon disulfide	0.69J	ug/L	1.0	12/18/19 02:10	
EPA 8260B	Carbon tetrachloride	429	ug/L	5.0	12/20/19 05:26	
EPA 8260B	Chloroform	27.9	ug/L	4.0	12/18/19 02:10	
SM 2320B	Alkalinity, Total as CaCO3	176	mg/L	5.0	12/12/19 18:09	
SM 2540C	Total Dissolved Solids	309	mg/L	10.0	12/17/19 15:41	
EPA 300.0	Chloride	9.7	mg/L	1.2	12/12/19 05:32	
EPA 300.0	Nitrate as N	5.8	mg/L	0.10	12/12/19 05:32	
EPA 300.0	Sulfate	33.0	mg/L	1.2	12/12/19 05:32	
EPA 353.2	Nitrogen, NO2 plus NO3	5.1	mg/L	0.50	12/19/19 16:51	
SM 5310C	Total Organic Carbon	0.64J	mg/L	1.0	12/18/19 19:31	
10502148005	MW27-GW-121019					
EPA 6010D	Barium, Dissolved	133	ug/L	10.0	12/19/19 11:50	
EPA 6010D	Beryllium, Dissolved	1.1J	ug/L	5.0	12/19/19 11:50	
EPA 6010D	Chromium, Dissolved	22.8	ug/L	10.0	12/19/19 11:50	
EPA 6010D	Cobalt, Dissolved	5.4J	ug/L	10.0	12/19/19 11:50	
EPA 6010D	Copper, Dissolved	9.6J	ug/L	10.0	12/19/19 11:50	
EPA 6010D	Lead, Dissolved	20.8	ug/L	10.0	12/19/19 11:50	
EPA 6010D	Molybdenum, Dissolved	5.3J	ug/L	15.0	12/19/19 11:50	
EPA 6010D	Nickel, Dissolved	16.4J	ug/L	20.0	12/19/19 11:50	
EPA 6010D	Vanadium, Dissolved	116	ug/L	15.0	12/19/19 11:50	
EPA 6010D	Zinc, Dissolved	51.5	ug/L	20.0	12/19/19 11:50	
EPA 7470A	Mercury, Dissolved	0.20J	ug/L	0.20	12/16/19 12:42	
EPA 8260B	Carbon tetrachloride	3.3	ug/L	0.50	12/21/19 20:53	
EPA 8260B	Chloroform	2.6J	ug/L	4.0	12/21/19 20:53	
SM 2320B	Alkalinity, Total as CaCO3	161	mg/L	5.0	12/12/19 18:15	
SM 2540C	Total Dissolved Solids	416	mg/L	20.0	12/17/19 15:41	
EPA 300.0	Chloride	3.0	mg/L	1.2	12/12/19 05:51	
EPA 300.0	Nitrate as N	0.27	mg/L	0.10	12/12/19 05:51	
EPA 300.0	Sulfate	25.6	mg/L	1.2	12/12/19 05:51	
EPA 353.2	Nitrogen, NO2 plus NO3	0.20	mg/L	0.10	12/19/19 12:51	FS,M1
EPA 410.4	Chemical Oxygen Demand	25.6J	mg/L	50.0	12/17/19 16:23	
SM 5310C	Total Organic Carbon	0.97J	mg/L	1.0	12/18/19 19:44	
10502148006	MW14D-GW-121019					
EPA 6010D	Barium, Dissolved	23.2	ug/L	10.0	12/16/19 13:53	
EPA 6010D	Beryllium, Dissolved	0.16J	ug/L	5.0	12/16/19 13:53	
EPA 6010D	Cobalt, Dissolved	0.59J	ug/L	10.0	12/16/19 13:53	
EPA 6010D	Vanadium, Dissolved	6.2J	ug/L	15.0	12/16/19 13:53	
SM 2320B	Alkalinity, Total as CaCO3	143	mg/L	5.0	12/12/19 18:20	
SM 2540C	Total Dissolved Solids	203	mg/L	10.0	12/17/19 15:41	
EPA 300.0	Chloride	1.2	mg/L	1.2	12/12/19 06:11	
EPA 300.0	Nitrate as N	0.097J	mg/L	0.10	12/12/19 06:11	
EPA 300.0	Sulfate	1.5	mg/L	1.2	12/12/19 06:11	B

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502148006	MW14D-GW-121019					
EPA 353.2	Nitrogen, NO2 plus NO3	0.072J	mg/L	0.10	12/19/19 12:57	
SM 5310C	Total Organic Carbon	0.96J	mg/L	1.0	12/18/19 19:57	
10502148007	MW3D-GW-121019					
EPA 6010D	Barium, Dissolved	41.8	ug/L	10.0	12/16/19 13:55	
EPA 6010D	Beryllium, Dissolved	0.18J	ug/L	5.0	12/16/19 13:55	
EPA 6010D	Cobalt, Dissolved	0.62J	ug/L	10.0	12/16/19 13:55	
EPA 6010D	Vanadium, Dissolved	1.7J	ug/L	15.0	12/16/19 13:55	
SM 2320B	Alkalinity, Total as CaCO3	141	mg/L	5.0	12/12/19 18:25	
SM 2540C	Total Dissolved Solids	196	mg/L	10.0	12/17/19 15:41	
EPA 300.0	Chloride	1.8	mg/L	1.2	12/12/19 06:30	
EPA 300.0	Nitrate as N	0.18	mg/L	0.10	12/12/19 06:30	
EPA 300.0	Sulfate	4.0	mg/L	1.2	12/12/19 06:30	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.15	mg/L	0.10	12/19/19 13:02	
10502148008	TB6,7,8-121019					
EPA 8260B	Methylene Chloride	1.3J	ug/L	4.0	12/18/19 00:34	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

6 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 649497

P8: Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

- BLANK (Lab ID: 3493202)
- Copper, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 649497

P8: Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

- BLANK (Lab ID: 3493202)
- Copper, Dissolved

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

6 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3497802)
 - Acrolein
 - Bromomethane
- MS (Lab ID: 3497803)
 - Acrolein
 - Bromomethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3497802)
 - Acrolein
- MS (Lab ID: 3497803)
 - Acrolein
- MSD (Lab ID: 3497804)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 650497

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3497802)
 - 1,1,2-Trichlorotrifluoroethane
 - Acrolein
 - Dichlorofluoromethane

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650497

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502151001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3497803)
 - Acrolein
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Dichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497803)
 - 2,2-Dichloropropane
 - Chloroethane
 - Chloromethane
 - Trichlorofluoromethane
 - Vinyl chloride
- MSD (Lab ID: 3497804)
 - 2,2-Dichloropropane
 - Chloroethane
 - Trichlorofluoromethane
 - Vinyl chloride

Additional Comments:

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3497801)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3497802)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3497803)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3497804)
 - 1,2-Dichloroethene (Total)
- MW14D-GW-121019 (Lab ID: 10502148006)
 - 1,2-Dichloroethene (Total)
- MW19D-GW-121019 (Lab ID: 10502148003)
 - 1,2-Dichloroethene (Total)
- MW28-GW-121019 (Lab ID: 10502148004)
 - 1,2-Dichloroethene (Total)
- MW3D-GW-121019 (Lab ID: 10502148007)
 - 1,2-Dichloroethene (Total)
- TB6,7,8-121019 (Lab ID: 10502148008)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3497801)
 - Dichlorofluoromethane
- LCS (Lab ID: 3497802)
 - Dichlorofluoromethane
- MS (Lab ID: 3497803)
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Dichlorofluoromethane

QC Batch: 651341

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3502945)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3502946)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3502947)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3502948)
 - 1,2-Dichloroethene (Total)
- MW27-GW-121019 (Lab ID: 10502148005)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3502945)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

Analyte Comments:

QC Batch: 651341

- LCS (Lab ID: 3502946)
 - Dichlorofluoromethane
- MS (Lab ID: 3502947)
 - Dichlorofluoromethane
- MSD (Lab ID: 3502948)
 - Dichlorofluoromethane
- MW27-GW-121019 (Lab ID: 10502148005)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649484

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148001,10502197007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3493145)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3493146)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 650375

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 3497260)
- Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 168797

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 765614)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 168797

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW27-GW-121019 (Lab ID: 10502148005)
- Sulfide, Total

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 649422

B: Analyte was detected in the associated method blank.

- BLANK for HBN 649422 [WETA/419 (Lab ID: 3492783)]
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649422

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148001,10502148002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3492785)
 - Chloride
 - Nitrate as N
- MS (Lab ID: 3492787)
 - Chloride
 - Sulfate
- MSD (Lab ID: 3492786)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3492788)
 - Chloride
 - Sulfate

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649867

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148002,10502148003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

QC Batch: 649869

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148005,10502148006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3494705)
 - Nitrogen, NO2 plus NO3

QC Batch: 649894

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148007,10502148005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3499947)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3499948)
 - Nitrogen, NO2 plus NO3

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 23, 2019

Analyte Comments:

QC Batch: 649867

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3494687)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494688)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3494690)
 - Nitrogen, NO2 plus NO3

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

7 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

6 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: Silva-GW-121019 **Lab ID: 10502148001** Collected: 12/10/19 08:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:11	12/20/19 11:11	74-82-8	MH
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:11	12/20/19 11:11	74-84-0	MH
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:11	12/20/19 11:11	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:11	12/20/19 11:11	74-98-6	MH
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 06:01	12/19/19 11:35	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 06:01	12/19/19 11:35	7440-38-2	
Barium, Dissolved	30.1	ug/L	10.0	0.60	1	12/18/19 06:01	12/19/19 11:35	7440-39-3	
Beryllium, Dissolved	0.13J	ug/L	5.0	0.12	1	12/18/19 06:01	12/19/19 11:35	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 06:01	12/19/19 11:35	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 06:01	12/19/19 11:35	7440-47-3	
Cobalt, Dissolved	0.73J	ug/L	10.0	0.50	1	12/18/19 06:01	12/19/19 11:35	7440-48-4	
Copper, Dissolved	5.8J	ug/L	10.0	1.2	1	12/18/19 06:01	12/19/19 11:35	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 06:01	12/19/19 11:35	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 06:01	12/19/19 11:35	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/18/19 06:01	12/19/19 11:35	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 06:01	12/19/19 11:35	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 06:01	12/19/19 11:35	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 06:01	12/19/19 11:35	7440-28-0	
Vanadium, Dissolved	9.5J	ug/L	15.0	0.43	1	12/18/19 06:01	12/19/19 11:35	7440-62-2	
Zinc, Dissolved	12.5J	ug/L	20.0	6.3	1	12/18/19 06:01	12/19/19 11:35	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:22	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	167	mg/L	5.0	2.0	1		12/12/19 16:56		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	329	mg/L	10.0	5.0	1		12/17/19 15:41		D6
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 13:01	18496-25-8	M1
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	2.9	mg/L	1.2	0.12	1		12/11/19 17:44	16887-00-6	M1
Nitrate as N	3.0	mg/L	0.10	0.012	1		12/11/19 17:44	14797-55-8	M1
Sulfate	13.4	mg/L	1.2	0.28	1		12/11/19 17:44	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	2.6	mg/L	0.50	0.088	5		12/19/19 16:48		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:21		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: Silva-GW-121019 **Lab ID: 10502148001** Collected: 12/10/19 08:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.58J	mg/L	1.0	0.39	1		12/18/19 18:13	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Sample: WS5-GW-121019 **Lab ID: 10502148002** Collected: 12/10/19 09:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP, Dissolved		Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 06:01	12/19/19 11:48	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 06:01	12/19/19 11:48	7440-38-2	
Barium, Dissolved	56.6	ug/L	10.0	0.60	1	12/18/19 06:01	12/19/19 11:48	7440-39-3	
Beryllium, Dissolved	0.21J	ug/L	5.0	0.12	1	12/18/19 06:01	12/19/19 11:48	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 06:01	12/19/19 11:48	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 06:01	12/19/19 11:48	7440-47-3	
Cobalt, Dissolved	2.3J	ug/L	10.0	0.50	1	12/18/19 06:01	12/19/19 11:48	7440-48-4	
Copper, Dissolved	10.8	ug/L	10.0	1.2	1	12/18/19 06:01	12/19/19 11:48	7440-50-8	
Lead, Dissolved	2.8J	ug/L	10.0	2.0	1	12/18/19 06:01	12/19/19 11:48	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 06:01	12/19/19 11:48	7439-98-7	
Nickel, Dissolved	28.1	ug/L	20.0	1.1	1	12/18/19 06:01	12/19/19 11:48	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 06:01	12/19/19 11:48	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 06:01	12/19/19 11:48	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 06:01	12/19/19 11:48	7440-28-0	
Vanadium, Dissolved	17.1	ug/L	15.0	0.43	1	12/18/19 06:01	12/19/19 11:48	7440-62-2	
Zinc, Dissolved	52.1	ug/L	20.0	6.3	1	12/18/19 06:01	12/19/19 11:48	7440-66-6	
7470A Mercury, Dissolved		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:35	7439-97-6	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	191	mg/L	5.0	2.0	1		12/12/19 17:57		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	254	mg/L	10.0	5.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 15:17	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	6.6	mg/L	1.2	0.12	1		12/11/19 19:01	16887-00-6	M1
Nitrate as N	1.6	mg/L	0.10	0.012	1		12/11/19 19:01	14797-55-8	
Sulfate	8.7	mg/L	1.2	0.28	1		12/11/19 19:01	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	1.3	mg/L	0.10	0.018	1		12/13/19 16:33		M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:22		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW19D-GW-121019 **Lab ID: 10502148003** Collected: 12/10/19 11:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:14	12/20/19 11:14	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:14	12/20/19 11:14	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:14	12/20/19 11:14	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:14	12/20/19 11:14	74-98-6	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:48	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:48	7440-38-2	
Barium, Dissolved	11.0	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:48	7440-39-3	
Beryllium, Dissolved	0.60J	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:48	7440-41-7	
Cadmium, Dissolved	0.64J	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:48	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:48	7440-47-3	
Cobalt, Dissolved	1.6J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:48	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:48	7440-50-8	
Lead, Dissolved	2.7J	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:48	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:48	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:48	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:48	7782-49-2	
Silver, Dissolved	0.54J	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:48	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:48	7440-28-0	
Vanadium, Dissolved	7.2J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:48	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:48	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:37	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 01:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 01:46	71-55-6	
1,1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 01:46	79-34-5	
1,1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 01:46	79-00-5	
1,1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 01:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 01:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 01:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 01:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 01:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 01:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 01:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 01:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 01:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 01:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 01:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 01:46	108-67-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW19D-GW-121019 Lab ID: 10502148003 Collected: 12/10/19 11:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:46	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 01:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 01:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 01:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 01:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 01:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 01:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 01:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 01:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 01:46	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 01:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 01:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 01:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 01:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 01:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 01:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 01:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 01:46	74-83-9	
Carbon disulfide	0.77J	ug/L	1.0	0.19	1		12/18/19 01:46	75-15-0	
Carbon tetrachloride	433	ug/L	5.0	1.9	10		12/20/19 05:09	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 01:46	75-00-3	
Chloroform	34.9	ug/L	4.0	0.45	1		12/18/19 01:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 01:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 01:46	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 01:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 01:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 01:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 01:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 01:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 01:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 01:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 01:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 01:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 01:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 01:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 01:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 01:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 01:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 01:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 01:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 01:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 01:46	75-01-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: **MW19D-GW-121019** Lab ID: **10502148003** Collected: 12/10/19 11:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 01:46	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 01:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 01:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 01:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 01:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 01:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 01:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 01:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 01:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 01:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	120	%	75-136		1		12/18/19 01:46	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/18/19 01:46	2037-26-5	
4-Bromofluorobenzene (S)	108	%	75-125		1		12/18/19 01:46	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	176	mg/L	5.0	2.0	1		12/12/19 18:03		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	302	mg/L	10.0	5.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 15:18	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	11.2	mg/L	1.2	0.12	1		12/11/19 20:36	16887-00-6	
Nitrate as N	5.4	mg/L	0.10	0.012	1		12/11/19 20:36	14797-55-8	
Sulfate	43.6	mg/L	1.2	0.28	1		12/11/19 20:36	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	4.5	mg/L	0.50	0.088	5		12/13/19 16:49		M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.78J	mg/L	1.0	0.39	1		12/18/19 18:52	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: **MW28-GW-121019** Lab ID: **10502148004** Collected: 12/10/19 11:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:17	12/20/19 11:17	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:17	12/20/19 11:17	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:17	12/20/19 11:17	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:17	12/20/19 11:17	74-98-6	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:50	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:50	7440-38-2	
Barium, Dissolved	17.8	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:50	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:50	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:50	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:50	7440-47-3	
Cobalt, Dissolved	0.98J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:50	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:50	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:50	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:50	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:50	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:50	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:50	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:50	7440-28-0	
Vanadium, Dissolved	9.0J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:50	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:50	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:40	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 02:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 02:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 02:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 02:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 02:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 02:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 02:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 02:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 02:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 02:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 02:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 02:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 02:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 02:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 02:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 02:10	108-67-8	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: **MW28-GW-121019** Lab ID: **10502148004** Collected: 12/10/19 11:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:10	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 02:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 02:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 02:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 02:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 02:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 02:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 02:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 02:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 02:10	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 02:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 02:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 02:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 02:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 02:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 02:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 02:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 02:10	74-83-9	
Carbon disulfide	0.69J	ug/L	1.0	0.19	1		12/18/19 02:10	75-15-0	
Carbon tetrachloride	429	ug/L	5.0	1.9	10		12/20/19 05:26	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 02:10	75-00-3	
Chloroform	27.9	ug/L	4.0	0.45	1		12/18/19 02:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 02:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 02:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 02:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 02:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 02:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 02:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 02:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 02:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 02:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 02:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 02:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 02:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 02:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 02:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 02:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 02:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 02:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 02:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 02:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 02:10	75-01-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW28-GW-121019 **Lab ID: 10502148004** Collected: 12/10/19 11:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 02:10	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 02:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 02:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 02:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 02:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 02:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 02:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 02:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 02:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 02:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%	75-136		1		12/18/19 02:10	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		12/18/19 02:10	2037-26-5	
4-Bromofluorobenzene (S)	108	%	75-125		1		12/18/19 02:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	176	mg/L	5.0	2.0	1		12/12/19 18:09		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	309	mg/L	10.0	5.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 15:18	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	9.7	mg/L	1.2	0.12	1		12/12/19 05:32	16887-00-6	
Nitrate as N	5.8	mg/L	0.10	0.012	1		12/12/19 05:32	14797-55-8	
Sulfate	33.0	mg/L	1.2	0.28	1		12/12/19 05:32	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	5.1	mg/L	0.50	0.088	5		12/19/19 16:51		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.64J	mg/L	1.0	0.39	1		12/18/19 19:31	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW27-GW-121019 **Lab ID: 10502148005** Collected: 12/10/19 12:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:19	12/20/19 11:19	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:19	12/20/19 11:19	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:19	12/20/19 11:19	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:19	12/20/19 11:19	74-98-6	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 06:01	12/19/19 11:50	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 06:01	12/19/19 11:50	7440-38-2	
Barium, Dissolved	133	ug/L	10.0	0.60	1	12/18/19 06:01	12/19/19 11:50	7440-39-3	
Beryllium, Dissolved	1.1J	ug/L	5.0	0.12	1	12/18/19 06:01	12/19/19 11:50	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 06:01	12/19/19 11:50	7440-43-9	
Chromium, Dissolved	22.8	ug/L	10.0	0.66	1	12/18/19 06:01	12/19/19 11:50	7440-47-3	
Cobalt, Dissolved	5.4J	ug/L	10.0	0.50	1	12/18/19 06:01	12/19/19 11:50	7440-48-4	
Copper, Dissolved	9.6J	ug/L	10.0	1.2	1	12/18/19 06:01	12/19/19 11:50	7440-50-8	
Lead, Dissolved	20.8	ug/L	10.0	2.0	1	12/18/19 06:01	12/19/19 11:50	7439-92-1	
Molybdenum, Dissolved	5.3J	ug/L	15.0	3.8	1	12/18/19 06:01	12/19/19 11:50	7439-98-7	
Nickel, Dissolved	16.4J	ug/L	20.0	1.1	1	12/18/19 06:01	12/19/19 11:50	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 06:01	12/19/19 11:50	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 06:01	12/19/19 11:50	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 06:01	12/19/19 11:50	7440-28-0	
Vanadium, Dissolved	116	ug/L	15.0	0.43	1	12/18/19 06:01	12/19/19 11:50	7440-62-2	
Zinc, Dissolved	51.5	ug/L	20.0	6.3	1	12/18/19 06:01	12/19/19 11:50	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	0.20J	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:42	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/21/19 20:53	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/21/19 20:53	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/21/19 20:53	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/21/19 20:53	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/21/19 20:53	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/21/19 20:53	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:53	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:53	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/21/19 20:53	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/21/19 20:53	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:53	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:53	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/21/19 20:53	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/21/19 20:53	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/21/19 20:53	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/21/19 20:53	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/21/19 20:53	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/21/19 20:53	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/21/19 20:53	108-67-8	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW27-GW-121019 **Lab ID: 10502148005** Collected: 12/10/19 12:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:53	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/21/19 20:53	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:53	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/21/19 20:53	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/21/19 20:53	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/21/19 20:53	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/21/19 20:53	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:53	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/21/19 20:53	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/21/19 20:53	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/21/19 20:53	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/21/19 20:53	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/21/19 20:53	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/21/19 20:53	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/21/19 20:53	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/21/19 20:53	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/21/19 20:53	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/21/19 20:53	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/21/19 20:53	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/21/19 20:53	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/21/19 20:53	75-15-0	
Carbon tetrachloride	3.3	ug/L	0.50	0.19	1		12/21/19 20:53	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:53	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/21/19 20:53	75-00-3	
Chloroform	2.6J	ug/L	4.0	0.45	1		12/21/19 20:53	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/21/19 20:53	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/21/19 20:53	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/21/19 20:53	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/21/19 20:53	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/21/19 20:53	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/21/19 20:53	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/21/19 20:53	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/21/19 20:53	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/21/19 20:53	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/21/19 20:53	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/21/19 20:53	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/21/19 20:53	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/21/19 20:53	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/21/19 20:53	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:53	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/21/19 20:53	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/21/19 20:53	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/21/19 20:53	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/21/19 20:53	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/21/19 20:53	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/21/19 20:53	75-01-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW27-GW-121019 **Lab ID: 10502148005** Collected: 12/10/19 12:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/21/19 20:53	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:53	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:53	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/21/19 20:53	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/21/19 20:53	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/21/19 20:53	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:53	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:53	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:53	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/21/19 20:53	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/21/19 20:53	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:53	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/21/19 20:53	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/21/19 20:53	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/21/19 20:53	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	75-136		1		12/21/19 20:53	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/21/19 20:53	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/21/19 20:53	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	161	mg/L	5.0	2.0	1		12/12/19 18:15		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	416	mg/L	20.0	10.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.16	mg/L	0.50	0.16	25		12/17/19 15:19	18496-25-8	D3
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	3.0	mg/L	1.2	0.12	1		12/12/19 05:51	16887-00-6	
Nitrate as N	0.27	mg/L	0.10	0.012	1		12/12/19 05:51	14797-55-8	
Sulfate	25.6	mg/L	1.2	0.28	1		12/12/19 05:51	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.20	mg/L	0.10	0.018	1		12/19/19 12:51		FS,M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	25.6J	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.97J	mg/L	1.0	0.39	1		12/18/19 19:44	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Project No.: 10502148

Sample: MW14D-GW-121019 **Lab ID:** 10502148006 Collected: 12/10/19 13:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:22	12/20/19 11:22	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:22	12/20/19 11:22	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:22	12/20/19 11:22	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:22	12/20/19 11:22	74-98-6	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:53	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:53	7440-38-2	
Barium, Dissolved	23.2	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:53	7440-39-3	
Beryllium, Dissolved	0.16J	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:53	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:53	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:53	7440-47-3	
Cobalt, Dissolved	0.59J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:53	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:53	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:53	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:53	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:53	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:53	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:53	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:53	7440-28-0	
Vanadium, Dissolved	6.2J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:53	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:53	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:44	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 02:57	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 02:57	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 02:57	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 02:57	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 02:57	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 02:57	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 02:57	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:57	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 02:57	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 02:57	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:57	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:57	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 02:57	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 02:57	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 02:57	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 02:57	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 02:57	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 02:57	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 02:57	108-67-8	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW14D-GW-121019 Lab ID: 10502148006 Collected: 12/10/19 13:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:57	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 02:57	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:57	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 02:57	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 02:57	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 02:57	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 02:57	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:57	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 02:57	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 02:57	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 02:57	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 02:57	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 02:57	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 02:57	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 02:57	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 02:57	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 02:57	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 02:57	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 02:57	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 02:57	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 02:57	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/18/19 02:57	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:57	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 02:57	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 02:57	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 02:57	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 02:57	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 02:57	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 02:57	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 02:57	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 02:57	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 02:57	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 02:57	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 02:57	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 02:57	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 02:57	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 02:57	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 02:57	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 02:57	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 02:57	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 02:57	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 02:57	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 02:57	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 02:57	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 02:57	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 02:57	75-01-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW14D-GW-121019 **Lab ID: 10502148006** Collected: 12/10/19 13:45 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 02:57	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 02:57	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 02:57	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 02:57	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 02:57	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 02:57	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 02:57	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:57	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:57	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 02:57	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 02:57	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 02:57	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 02:57	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 02:57	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 02:57	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	120	%	75-136		1		12/18/19 02:57	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		12/18/19 02:57	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1		12/18/19 02:57	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	143	mg/L	5.0	2.0	1		12/12/19 18:20		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	203	mg/L	10.0	5.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 15:19	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.2	mg/L	1.2	0.12	1		12/12/19 06:11	16887-00-6	
Nitrate as N	0.097J	mg/L	0.10	0.012	1		12/12/19 06:11	14797-55-8	
Sulfate	1.5	mg/L	1.2	0.28	1		12/12/19 06:11	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.072J	mg/L	0.10	0.018	1		12/19/19 12:57		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.96J	mg/L	1.0	0.39	1		12/18/19 19:57	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Project No.: 10502148

Sample: **MW3D-GW-121019** Lab ID: **10502148007** Collected: 12/10/19 14:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/20/19 11:36	12/20/19 11:36	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/20/19 11:36	12/20/19 11:36	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/20/19 11:36	12/20/19 11:36	74-85-1	
n-Propane	<5.48	ug/L	18.6	5.48	1	12/20/19 11:36	12/20/19 11:36	74-98-6	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/12/19 13:30	12/16/19 13:55	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/12/19 13:30	12/16/19 13:55	7440-38-2	
Barium, Dissolved	41.8	ug/L	10.0	0.60	1	12/12/19 13:30	12/16/19 13:55	7440-39-3	
Beryllium, Dissolved	0.18J	ug/L	5.0	0.12	1	12/12/19 13:30	12/16/19 13:55	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/12/19 13:30	12/16/19 13:55	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/12/19 13:30	12/16/19 13:55	7440-47-3	
Cobalt, Dissolved	0.62J	ug/L	10.0	0.50	1	12/12/19 13:30	12/16/19 13:55	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/12/19 13:30	12/16/19 13:55	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/12/19 13:30	12/16/19 13:55	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/12/19 13:30	12/16/19 13:55	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/12/19 13:30	12/16/19 13:55	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/12/19 13:30	12/16/19 13:55	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/12/19 13:30	12/16/19 13:55	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/12/19 13:30	12/16/19 13:55	7440-28-0	
Vanadium, Dissolved	1.7J	ug/L	15.0	0.43	1	12/12/19 13:30	12/16/19 13:55	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/12/19 13:30	12/16/19 13:55	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/12/19 15:52	12/16/19 12:47	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 03:21	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 03:21	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 03:21	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 03:21	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 03:21	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 03:21	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 03:21	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:21	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 03:21	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 03:21	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:21	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:21	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 03:21	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 03:21	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 03:21	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 03:21	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 03:21	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 03:21	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 03:21	108-67-8	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: MW3D-GW-121019 Lab ID: 10502148007 Collected: 12/10/19 14:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:21	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 03:21	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:21	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 03:21	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 03:21	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 03:21	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 03:21	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:21	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 03:21	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 03:21	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 03:21	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 03:21	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 03:21	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 03:21	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 03:21	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 03:21	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 03:21	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 03:21	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 03:21	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 03:21	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 03:21	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/18/19 03:21	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:21	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 03:21	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 03:21	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 03:21	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 03:21	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 03:21	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 03:21	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 03:21	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 03:21	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 03:21	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 03:21	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 03:21	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 03:21	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 03:21	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 03:21	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 03:21	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 03:21	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:21	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 03:21	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 03:21	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 03:21	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 03:21	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 03:21	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 03:21	75-01-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

Sample: MW3D-GW-121019 **Lab ID: 10502148007** Collected: 12/10/19 14:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 03:21	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 03:21	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:21	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 03:21	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 03:21	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 03:21	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:21	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:21	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:21	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 03:21	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 03:21	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:21	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 03:21	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 03:21	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 03:21	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	125	%	75-136		1		12/18/19 03:21	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/18/19 03:21	2037-26-5	
4-Bromofluorobenzene (S)	108	%	75-125		1		12/18/19 03:21	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	141	mg/L	5.0	2.0	1		12/12/19 18:25		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	196	mg/L	10.0	5.0	1		12/17/19 15:41		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/17/19 15:20	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.8	mg/L	1.2	0.12	1		12/12/19 06:30	16887-00-6	
Nitrate as N	0.18	mg/L	0.10	0.012	1		12/12/19 06:30	14797-55-8	
Sulfate	4.0	mg/L	1.2	0.28	1		12/12/19 06:30	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.15	mg/L	0.10	0.018	1		12/19/19 13:02		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/17/19 10:28	12/17/19 16:24		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/18/19 20:10	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: TB6,7,8-121019 **Lab ID: 10502148008** Collected: 12/10/19 08:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 00:34	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 00:34	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 00:34	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 00:34	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 00:34	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 00:34	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 00:34	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:34	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 00:34	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 00:34	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:34	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:34	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 00:34	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 00:34	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 00:34	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 00:34	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 00:34	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 00:34	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 00:34	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:34	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 00:34	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:34	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 00:34	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 00:34	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 00:34	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 00:34	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:34	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 00:34	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 00:34	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 00:34	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 00:34	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 00:34	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 00:34	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 00:34	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 00:34	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 00:34	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 00:34	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 00:34	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 00:34	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 00:34	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/18/19 00:34	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:34	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 00:34	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 00:34	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 00:34	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 00:34	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Sample: TB6,7,8-121019 **Lab ID: 10502148008** Collected: 12/10/19 08:00 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 00:34	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 00:34	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 00:34	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 00:34	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 00:34	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 00:34	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 00:34	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 00:34	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 00:34	1634-04-4	
Methylene Chloride	1.3J	ug/L	4.0	0.98	1		12/18/19 00:34	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 00:34	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 00:34	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:34	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 00:34	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 00:34	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 00:34	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 00:34	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 00:34	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 00:34	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 00:34	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 00:34	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:34	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 00:34	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 00:34	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 00:34	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:34	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:34	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:34	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 00:34	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 00:34	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:34	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 00:34	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 00:34	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 00:34	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	117	%	75-136		1		12/18/19 00:34	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/18/19 00:34	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1		12/18/19 00:34	460-00-4	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 1400012 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10502148001, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: R3484572-1 Matrix: Water
 Associated Lab Samples: 10502148001, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/20/19 10:51	
Ethane	ug/L	<4.07	13.0	4.07	12/20/19 10:51	
Ethene	ug/L	<4.26	13.0	4.26	12/20/19 10:51	
n-Propane	ug/L	<5.48	18.6	5.48	12/20/19 10:51	

LABORATORY CONTROL SAMPLE & LCSD: R3484572-6 R3484572-7

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	62.4	65.0	92.0	95.9	85.0-115	4.08	20	
Ethane	ug/L	129	123	126	95.3	97.7	85.0-115	2.41	20	
Ethene	ug/L	127	118	121	92.9	95.3	85.0-115	2.51	20	
n-Propane	ug/L	186	177	183	95.2	98.4	85.0-115	3.33	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3484572-4 R3484572-5

Parameter	Units	MS 10502148001 Result	MSD Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	ND	67.8	67.8	93.2	77.4	137	114	85.0-115	18.5	20	MH
Ethane	ug/L	ND	129	129	148	151	115	117	85.0-115	2.01	20	MH
Ethene	ug/L	ND	127	127	143	146	113	115	85.0-115	2.08	20	
n-Propane	ug/L	ND	186	186	212	215	114	116	85.0-115	1.41	20	MH

SAMPLE DUPLICATE: R3484572-2

Parameter	Units	10502148004 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	
n-Propane	ug/L	ND	<5.48	0.00	20	

SAMPLE DUPLICATE: R3484572-3

Parameter	Units	L1170707-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	2780	2770	0.360	20	
Ethane	ug/L	ND	<4.07	0.00	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

SAMPLE DUPLICATE: R3484572-3

Parameter	Units	L1170707-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethene	ug/L	ND	<4.26	0.00	20	
n-Propane	ug/L	ND	<5.48	0.00	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 649501 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 3493217 Matrix: Water
 Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/16/19 12:10	

LABORATORY CONTROL SAMPLE: 3493218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.8	116	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493219 3493220

Parameter	Units	10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.8	5.8	116	116	80-120	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649497 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502148003, 10502148004, 10502148006, 10502148007

METHOD BLANK: 3493202 Matrix: Water
Associated Lab Samples: 10502148003, 10502148004, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/16/19 13:25	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/16/19 13:25	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/16/19 13:25	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/16/19 13:25	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/16/19 13:25	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/16/19 13:25	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/16/19 13:25	
Copper, Dissolved	ug/L	8.3J	10.0	1.2	12/16/19 13:25	P8
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/16/19 13:25	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/16/19 13:25	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/16/19 13:25	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/16/19 13:25	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/16/19 13:25	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/16/19 13:25	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/16/19 13:25	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/16/19 13:25	

LABORATORY CONTROL SAMPLE: 3493203

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1030	103	80-120	
Arsenic, Dissolved	ug/L	1000	1040	104	80-120	
Barium, Dissolved	ug/L	1000	1030	103	80-120	
Beryllium, Dissolved	ug/L	1000	1040	104	80-120	
Cadmium, Dissolved	ug/L	1000	1050	105	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1020	102	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1030	103	80-120	
Molybdenum, Dissolved	ug/L	1000	1040	104	80-120	
Nickel, Dissolved	ug/L	1000	1020	102	80-120	
Selenium, Dissolved	ug/L	1000	1060	106	80-120	
Silver, Dissolved	ug/L	500	514	103	80-120	
Thallium, Dissolved	ug/L	1000	999	100	80-120	
Vanadium, Dissolved	ug/L	1000	1010	101	80-120	
Zinc, Dissolved	ug/L	1000	1050	105	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Parameter	Units	10502814001		3493204		3493205		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1010	1030	101	103	75-125	2	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1030	1050	103	105	75-125	2	20			
Barium, Dissolved	ug/L	29.9	1000	1000	1030	1050	100	102	75-125	2	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1030	1050	103	105	75-125	2	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1010	1040	101	104	75-125	3	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	999	1020	100	102	75-125	2	20			
Cobalt, Dissolved	ug/L	0.83J	1000	1000	982	1010	98	100	75-125	2	20			
Copper, Dissolved	ug/L	6.7J	1000	1000	1000	1030	100	102	75-125	2	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	997	1020	100	102	75-125	2	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1030	1050	103	105	75-125	2	20			
Nickel, Dissolved	ug/L	<1.1	1000	1000	981	1010	98	101	75-125	3	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1030	1060	103	106	75-125	2	20			
Silver, Dissolved	ug/L	<0.40	500	500	506	517	101	103	75-125	2	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	976	1000	98	100	75-125	2	20			
Vanadium, Dissolved	ug/L	9.6J	1000	1000	1000	1030	99	102	75-125	2	20			
Zinc, Dissolved	ug/L	18.2J	1000	1000	1030	1060	101	104	75-125	3	20			

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 650417 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502148001, 10502148002, 10502148005

METHOD BLANK: 3497454 Matrix: Water
Associated Lab Samples: 10502148001, 10502148002, 10502148005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/19/19 11:27	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/19/19 11:27	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/19/19 11:27	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/19/19 11:27	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/19/19 11:27	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/19/19 11:27	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/19/19 11:27	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/19/19 11:27	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/19/19 11:27	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/19/19 11:27	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/19/19 11:27	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/19/19 11:27	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/19/19 11:27	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/19/19 11:27	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/19/19 11:27	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/19/19 11:27	

LABORATORY CONTROL SAMPLE: 3497455

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	986	99	80-120	
Arsenic, Dissolved	ug/L	1000	998	100	80-120	
Barium, Dissolved	ug/L	1000	992	99	80-120	
Beryllium, Dissolved	ug/L	1000	1010	101	80-120	
Cadmium, Dissolved	ug/L	1000	1010	101	80-120	
Chromium, Dissolved	ug/L	1000	985	98	80-120	
Cobalt, Dissolved	ug/L	1000	987	99	80-120	
Copper, Dissolved	ug/L	1000	979	98	80-120	
Lead, Dissolved	ug/L	1000	996	100	80-120	
Molybdenum, Dissolved	ug/L	1000	1000	100	80-120	
Nickel, Dissolved	ug/L	1000	989	99	80-120	
Selenium, Dissolved	ug/L	1000	1020	102	80-120	
Silver, Dissolved	ug/L	500	494	99	80-120	
Thallium, Dissolved	ug/L	1000	975	98	80-120	
Vanadium, Dissolved	ug/L	1000	982	98	80-120	
Zinc, Dissolved	ug/L	1000	1000	100	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Parameter	Units	3497456		3497457		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	977	991	98	99	75-125	1	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1020	1020	102	101	75-125	0	20		
Barium, Dissolved	ug/L	30.1	1000	1000	1030	1030	100	100	75-125	0	20		
Beryllium, Dissolved	ug/L	0.13J	1000	1000	1030	1030	103	103	75-125	0	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1010	1010	101	101	75-125	0	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	995	998	99	100	75-125	0	20		
Cobalt, Dissolved	ug/L	0.73J	1000	1000	978	981	98	98	75-125	0	20		
Copper, Dissolved	ug/L	5.8J	1000	1000	991	1000	99	99	75-125	1	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	993	998	99	100	75-125	0	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	987	991	99	99	75-125	0	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	977	979	98	98	75-125	0	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1020	1030	102	103	75-125	0	20		
Silver, Dissolved	ug/L	<0.40	500	500	500	504	100	101	75-125	1	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	975	978	97	97	75-125	0	20		
Vanadium, Dissolved	ug/L	9.5J	1000	1000	1000	1010	99	100	75-125	0	20		
Zinc, Dissolved	ug/L	12.5J	1000	1000	1010	1010	100	100	75-125	0	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 650497 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502148003, 10502148004, 10502148006, 10502148007, 10502148008

METHOD BLANK: 3497801 Matrix: Water
Associated Lab Samples: 10502148003, 10502148004, 10502148006, 10502148007, 10502148008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	12/17/19 22:58	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/17/19 22:58	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/17/19 22:58	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/17/19 22:58	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/17/19 22:58	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/17/19 22:58	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/17/19 22:58	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/17/19 22:58	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/17/19 22:58	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/17/19 22:58	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/17/19 22:58	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/17/19 22:58	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/17/19 22:58	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/17/19 22:58	
Acetone	ug/L	<9.2	20.0	9.2	12/17/19 22:58	
Acrolein	ug/L	<3.2	100	3.2	12/17/19 22:58	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/17/19 22:58	
Benzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/17/19 22:58	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
Bromoform	ug/L	<0.80	4.0	0.80	12/17/19 22:58	
Bromomethane	ug/L	<1.8	4.0	1.8	12/17/19 22:58	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/17/19 22:58	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/17/19 22:58	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

METHOD BLANK: 3497801

Matrix: Water

Associated Lab Samples: 10502148003, 10502148004, 10502148006, 10502148007, 10502148008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Chloroethane	ug/L	<0.49	1.0	0.49	12/17/19 22:58	
Chloroform	ug/L	<0.45	4.0	0.45	12/17/19 22:58	
Chloromethane	ug/L	<0.48	4.0	0.48	12/17/19 22:58	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	12/17/19 22:58	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/17/19 22:58	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/17/19 22:58	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/17/19 22:58	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Naphthalene	ug/L	<0.48	1.0	0.48	12/17/19 22:58	
o-Xylene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Styrene	ug/L	<0.19	0.50	0.19	12/17/19 22:58	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/17/19 22:58	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/17/19 22:58	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Tetrahydrofuran	ug/L	<2.2	40.0	2.2	12/17/19 22:58	
Toluene	ug/L	<0.083	0.50	0.083	12/17/19 22:58	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/17/19 22:58	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/17/19 22:58	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/17/19 22:58	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/17/19 22:58	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/17/19 22:58	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/17/19 22:58	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/17/19 22:58	
1,2-Dichloroethane-d4 (S)	%	117	75-136		12/17/19 22:58	
4-Bromofluorobenzene (S)	%	111	75-125		12/17/19 22:58	
Toluene-d8 (S)	%	102	75-125		12/17/19 22:58	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	100	68-141	
1,1,1-Trichloroethane	ug/L	20	21.2	106	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	26.5	133	69-132	L3
1,1-Dichloroethane	ug/L	20	23.7	118	73-125	
1,1-Dichloroethene	ug/L	20	22.0	110	71-126	
1,1-Dichloropropene	ug/L	20	21.3	106	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.0	90	72-126	
1,2,3-Trichloropropane	ug/L	20	20.6	103	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.0	85	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.1	101	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.3	91	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	101	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	41.0	102	74-125	N2
1,2-Dichloropropane	ug/L	20	21.7	109	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-127	
1,3-Dichlorobenzene	ug/L	20	20.7	104	75-126	
1,3-Dichloropropane	ug/L	20	21.0	105	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	422	106	72-129	
2,2,4-Trimethylpentane	ug/L	20	20.5	103	72-128	
2,2-Dichloropropane	ug/L	20	23.8	119	65-138	
2-Butanone (MEK)	ug/L	100	104	104	59-144	
2-Chlorotoluene	ug/L	20	20.9	105	75-127	
2-Hexanone	ug/L	100	99.0	99	73-134	
4-Chlorotoluene	ug/L	20	20.2	101	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.9	98	62-141	
Acetone	ug/L	100	110	110	60-137	
Acrolein	ug/L	200	306	153	60-141	CH,L3,SS
Acrylonitrile	ug/L	200	216	108	75-129	
Benzene	ug/L	20	21.0	105	73-125	
Bromobenzene	ug/L	20	20.4	102	73-125	
Bromochloromethane	ug/L	20	17.2	86	75-135	
Bromodichloromethane	ug/L	20	21.4	107	75-125	
Bromoform	ug/L	20	21.2	106	67-136	
Bromomethane	ug/L	20	21.8	109	30-150	SS
Carbon disulfide	ug/L	20	18.6	93	47-137	
Carbon tetrachloride	ug/L	20	20.5	102	75-125	
Chlorobenzene	ug/L	20	20.1	101	75-125	
Chloroethane	ug/L	20	22.3	111	63-136	
Chloroform	ug/L	20	18.9	95	73-128	
Chloromethane	ug/L	20	18.1	90	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.2	106	75-125	
Dibromomethane	ug/L	20	17.7	88	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	27.7	139	68-127	L3
Diisopropyl ether	ug/L	20	23.0	115	71-131	
Ethyl-tert-butyl ether	ug/L	20	21.2	106	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.5	87	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.1	96	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-126	
Methyl-tert-butyl ether	ug/L	20	23.4	117	75-125	
Methylene Chloride	ug/L	20	24.0	120	70-125	
n-Butylbenzene	ug/L	20	21.5	107	75-126	
n-Propylbenzene	ug/L	20	20.5	103	73-127	
Naphthalene	ug/L	20	19.1	96	63-128	
o-Xylene	ug/L	20	18.8	94	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	18.7	93	75-125	
tert-Amylmethyl ether	ug/L	20	20.9	104	75-125	
tert-Butyl Alcohol	ug/L	200	244	122	75-130	
tert-Butylbenzene	ug/L	20	20.1	101	75-131	
Tetrachloroethene	ug/L	20	18.8	94	74-125	
Tetrahydrofuran	ug/L	200	146	73	64-138	
Toluene	ug/L	20	19.4	97	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	68-128	
trans-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5	99	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	23.9	120	72-133	
Vinyl acetate	ug/L	20	20.8	104	61-129	
Vinyl chloride	ug/L	20	23.0	115	75-128	
Xylene (Total)	ug/L	60	57.4	96	75-125	
1,2-Dichloroethane-d4 (S)	%			111	75-136	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804

Parameter	Units	10502151001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.1	19.4	100	97	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.2	25.6	111	128	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	22.6	23.5	113	118	66-134	4	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.9	20.3	100	102	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3497803		3497804									
Parameter	Units	10502151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	29.0	28.1	145	141	65-146	3	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.7	24.4	123	122	68-132	1	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	23.8	23.3	119	116	66-139	2	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	21.6	24.5	108	122	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	17.8	18.5	89	92	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20.7	21.6	104	108	69-128	4	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	16.9	17.9	84	90	65-140	6	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.9	20.1	100	101	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.4	48.4	95	97	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	18.9	19.5	94	98	68-125	4	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.7	20.3	98	101	74-136	3	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	19.7	19.5	99	98	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	44.1	44.3	110	111	71-126	0	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.1	21.3	106	106	67-125	1	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.8	20.3	99	102	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.7	20.4	99	102	75-131	3	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	20.2	20.6	101	103	71-125	2	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.4	19.6	97	98	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	353	390	88	98	68-125	10	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.5	20.3	103	102	54-129	1	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	28.2	29.1	141	145	69-139	3	30	M1	
2-Butanone (MEK)	ug/L	<0.99	100	100	99.7	107	100	107	54-144	7	30		
2-Chlorotoluene	ug/L	<0.16	20	20	20.6	21.0	103	105	75-134	2	30		
2-Hexanone	ug/L	<0.88	100	100	99.3	101	99	101	58-137	2	30		
4-Chlorotoluene	ug/L	<0.13	20	20	19.6	20.2	98	101	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	102	104	102	104	60-129	2	30		
Acetone	ug/L	<9.2	100	100	91.8	88.7	92	89	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	389	379	195	190	30-150	3	30	CH, M0,SS	
Acrylonitrile	ug/L	<0.91	200	200	229	235	115	118	68-125	3	30		
Benzene	ug/L	<0.10	20	20	20.3	20.5	102	102	68-125	1	30		
Bromobenzene	ug/L	<0.21	20	20	19.3	20.2	96	101	73-126	5	30		
Bromochloromethane	ug/L	<0.27	20	20	19.5	19.8	98	99	66-143	1	30		
Bromodichloromethane	ug/L	<0.22	20	20	21.0	21.3	105	106	74-125	1	30		
Bromoform	ug/L	<0.80	20	20	20.9	21.6	104	108	64-134	3	30		
Bromomethane	ug/L	<1.8	20	20	28.0	27.8	140	139	30-150	1	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	18.6	18.2	93	91	43-147	3	30		
Carbon tetrachloride	ug/L	<0.19	20	20	24.6	25.8	123	129	71-143	5	30		
Chlorobenzene	ug/L	<0.17	20	20	19.3	19.6	97	98	75-125	1	30		
Chloroethane	ug/L	<0.49	20	20	33.6	28.4	168	142	75-129	17	30	M1	
Chloroform	ug/L	<0.45	20	20	21.8	22.0	109	110	66-132	1	30		
Chloromethane	ug/L	<0.48	20	20	27.7	25.8	139	129	53-137	7	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	20.9	22.1	105	110	67-133	5	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	18.8	95	94	66-125	1	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Parameter	Units	10502151001		3497803		3497804		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibromochloromethane	ug/L	<0.12	20	20	20.4	21.1	102	105	62-132	3	30			
Dibromomethane	ug/L	<0.16	20	20	16.5	16.7	83	83	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.5	25.5	132	127	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	31.0	29.7	155	149	70-131	4	30	M0		
Diisopropyl ether	ug/L	<0.13	20	20	24.0	23.9	120	119	63-131	1	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	24.0	107	120	66-128	11	30			
Ethylbenzene	ug/L	<0.14	20	20	19.5	19.6	98	98	74-126	0	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	17.5	17.9	87	90	68-143	3	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	19.1	19.3	95	96	74-130	1	30			
m&p-Xylene	ug/L	<0.31	40	40	37.6	38.0	94	95	69-132	1	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	24.8	23.2	124	116	65-131	6	30			
Methylene Chloride	ug/L	<0.98	20	20	23.5	23.4	116	115	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	20	20	21.3	21.8	107	109	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	20	20	20.4	21.3	102	106	67-138	4	30			
Naphthalene	ug/L	<0.48	20	20	19.7	19.7	99	99	60-130	0	30			
o-Xylene	ug/L	<0.16	20	20	18.4	18.5	92	93	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	20.3	21.2	102	106	72-133	4	30			
sec-Butylbenzene	ug/L	<0.15	20	20	21.3	21.7	106	108	73-134	2	30			
Styrene	ug/L	<0.19	20	20	18.1	18.3	91	91	72-125	1	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	20.2	20.6	101	103	67-125	2	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	212	229	106	115	64-137	8	30			
tert-Butylbenzene	ug/L	<0.15	20	20	20.5	21.0	102	105	70-143	3	30			
Tetrachloroethene	ug/L	<0.17	20	20	18.4	19.0	92	95	72-129	3	30			
Tetrahydrofuran	ug/L	<2.2	200	200	141	174	70	87	66-128	21	30			
Toluene	ug/L	<0.083	20	20	18.8	19.2	94	96	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	23.1	22.2	116	111	62-137	4	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	20.7	21.0	104	105	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	49.8	52.0	100	104	45-128	4	30			
Trichloroethene	ug/L	<0.15	20	20	19.2	19.4	96	97	74-132	1	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	31.0	32.0	155	160	75-139	3	30	M1		
Vinyl acetate	ug/L	<1.1	20	20	19.8	22.4	99	112	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	32.3	31.9	161	159	68-146	1	30	M1		
Xylene (Total)	ug/L	<0.31	60	60	56.0	56.5	93	94	67-137	1	30			
1,2-Dichloroethane-d4 (S)	%						113	111	75-136					
4-Bromofluorobenzene (S)	%						101	106	75-125					
Toluene-d8 (S)	%						98	100	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 651341 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502148005

METHOD BLANK: 3502945 Matrix: Water
Associated Lab Samples: 10502148005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	12/21/19 20:18	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,3-Trichlorobenzene	ug/L	<0.21	4.0	0.21	12/21/19 20:18	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/21/19 20:18	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/21/19 20:18	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/21/19 20:18	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/21/19 20:18	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/21/19 20:18	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/21/19 20:18	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/21/19 20:18	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/21/19 20:18	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/21/19 20:18	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/21/19 20:18	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/21/19 20:18	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/21/19 20:18	
Acetone	ug/L	<9.2	20.0	9.2	12/21/19 20:18	
Acrolein	ug/L	<3.2	10.0	3.2	12/21/19 20:18	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/21/19 20:18	
Benzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/21/19 20:18	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/21/19 20:18	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/21/19 20:18	
Bromoform	ug/L	<0.80	4.0	0.80	12/21/19 20:18	
Bromomethane	ug/L	<1.8	4.0	1.8	12/21/19 20:18	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/21/19 20:18	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/21/19 20:18	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

METHOD BLANK: 3502945

Matrix: Water

Associated Lab Samples: 10502148005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Chloroethane	ug/L	<0.49	1.0	0.49	12/21/19 20:18	
Chloroform	ug/L	<0.45	4.0	0.45	12/21/19 20:18	
Chloromethane	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/21/19 20:18	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/21/19 20:18	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/21/19 20:18	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/21/19 20:18	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Naphthalene	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
o-Xylene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Styrene	ug/L	<0.19	0.50	0.19	12/21/19 20:18	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/21/19 20:18	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/21/19 20:18	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/21/19 20:18	
Toluene	ug/L	<0.083	0.50	0.083	12/21/19 20:18	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/21/19 20:18	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/21/19 20:18	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/21/19 20:18	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/21/19 20:18	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/21/19 20:18	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/21/19 20:18	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/21/19 20:18	
1,2-Dichloroethane-d4 (S)	%	107	75-136		12/21/19 20:18	
4-Bromofluorobenzene (S)	%	104	75-125		12/21/19 20:18	
Toluene-d8 (S)	%	101	75-125		12/21/19 20:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.7	88	68-141	
1,1,1-Trichloroethane	ug/L	20	18.4	92	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	73-125	
1,1,2-Trichloroethane	ug/L	20	17.6	88	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.7	93	69-132	
1,1-Dichloroethane	ug/L	20	17.9	89	73-125	
1,1-Dichloroethene	ug/L	20	17.6	88	71-126	
1,1-Dichloropropene	ug/L	20	19.1	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	16.0	80	72-126	
1,2,3-Trichloropropane	ug/L	20	18.6	93	75-126	
1,2,4-Trichlorobenzene	ug/L	20	18.0	90	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.4	97	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	41.4	83	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	18.4	92	75-129	
1,2-Dichlorobenzene	ug/L	20	18.1	91	75-129	
1,2-Dichloroethane	ug/L	20	18.2	91	75-125	
1,2-Dichloroethene (Total)	ug/L	40	34.8	87	74-125	N2
1,2-Dichloropropane	ug/L	20	17.0	85	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.6	98	75-127	
1,3-Dichlorobenzene	ug/L	20	18.1	90	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	18.4	92	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	362	90	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.5	97	72-128	
2,2-Dichloropropane	ug/L	20	18.1	90	65-138	
2-Butanone (MEK)	ug/L	100	84.0	84	59-144	
2-Chlorotoluene	ug/L	20	19.0	95	75-127	
2-Hexanone	ug/L	100	90.1	90	73-134	
4-Chlorotoluene	ug/L	20	18.4	92	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	89.6	90	62-141	
Acetone	ug/L	100	85.5	86	60-137	
Acrolein	ug/L	200	192	96	60-141	
Acrylonitrile	ug/L	200	178	89	75-129	
Benzene	ug/L	20	17.7	88	73-125	
Bromobenzene	ug/L	20	18.0	90	73-125	
Bromochloromethane	ug/L	20	16.8	84	75-135	
Bromodichloromethane	ug/L	20	17.2	86	75-125	
Bromoform	ug/L	20	16.4	82	67-136	
Bromomethane	ug/L	20	14.2	71	30-150	
Carbon disulfide	ug/L	20	16.9	85	47-137	
Carbon tetrachloride	ug/L	20	17.7	89	75-125	
Chlorobenzene	ug/L	20	18.6	93	75-125	
Chloroethane	ug/L	20	23.0	115	63-136	
Chloroform	ug/L	20	18.8	94	73-128	
Chloromethane	ug/L	20	16.8	84	55-130	
cis-1,2-Dichloroethene	ug/L	20	17.5	88	75-125	
cis-1,3-Dichloropropene	ug/L	20	17.3	86	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	17.8	89	75-125	
Dibromomethane	ug/L	20	16.8	84	75-125	
Dichlorodifluoromethane	ug/L	20	19.6	98	63-132	
Dichlorofluoromethane	ug/L	20	20.8	104	68-127	
Diisopropyl ether	ug/L	20	17.2	86	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	88	75-125	
Ethylbenzene	ug/L	20	18.6	93	75-125	
Hexachloro-1,3-butadiene	ug/L	20	20.3	101	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.5	97	75-125	
m&p-Xylene	ug/L	40	37.3	93	75-126	
Methyl-tert-butyl ether	ug/L	20	17.1	85	75-125	
Methylene Chloride	ug/L	20	17.7	88	70-125	
n-Butylbenzene	ug/L	20	19.6	98	75-126	
n-Propylbenzene	ug/L	20	19.5	97	73-127	
Naphthalene	ug/L	20	15.7	79	63-128	
o-Xylene	ug/L	20	18.5	92	75-128	
p-Isopropyltoluene	ug/L	20	18.0	90	75-125	
sec-Butylbenzene	ug/L	20	19.9	99	75-126	
Styrene	ug/L	20	18.1	90	75-125	
tert-Amylmethyl ether	ug/L	20	18.1	90	75-125	
tert-Butyl Alcohol	ug/L	200	182	91	75-130	
tert-Butylbenzene	ug/L	20	18.3	91	75-131	
Tetrachloroethene	ug/L	20	18.6	93	74-125	
Tetrahydrofuran	ug/L	200	172	86	64-138	
Toluene	ug/L	20	17.7	89	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.3	87	68-128	
trans-1,3-Dichloropropene	ug/L	20	17.7	89	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	38.4	77	60-127	
Trichloroethene	ug/L	20	16.4	82	75-127	
Trichlorofluoromethane	ug/L	20	19.9	99	72-133	
Vinyl acetate	ug/L	20	18.0	90	61-129	
Vinyl chloride	ug/L	20	16.9	85	75-128	
Xylene (Total)	ug/L	60	55.7	93	75-125	
1,2-Dichloroethane-d4 (S)	%			107	75-136	
4-Bromofluorobenzene (S)	%			104	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947 3502948

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503564007	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	18.1	18.3	90	92	75-140	1	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	19.9	19.8	99	99	74-136	0	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.7	19.9	98	99	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	17.3	17.6	86	88	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947												3502948											
Parameter	Units	10503564007		MS	MSD	MS		MSD		% Rec Limits	RPD	Max RPD	Qual										
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec														
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20	20.6	20.8	103	104	65-146	1	30											
1,1-Dichloroethane	ug/L	<0.17	20	20	18.2	18.4	91	92	68-132	1	30												
1,1-Dichloroethene	ug/L	<0.16	20	20	18.7	18.2	93	91	66-139	2	30												
1,1-Dichloropropene	ug/L	<0.20	20	20	20.3	19.9	101	100	67-134	2	30												
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	20.0	22.4	100	112	67-129	12	30												
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.2	19.4	96	97	69-128	1	30												
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	20.1	22.9	100	114	65-140	13	30												
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	20.2	20.7	101	104	71-133	3	30												
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	44.2	44.9	88	90	54-138	1	30												
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	17.9	18.0	90	90	68-125	0	30												
1,2-Dichlorobenzene	ug/L	<0.14	20	20	18.8	19.2	94	96	74-136	2	30												
1,2-Dichloroethane	ug/L	<0.22	20	20	18.2	18.1	91	91	68-125	0	30												
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	34.2	34.4	85	86	71-126	1	30	N2											
1,2-Dichloropropane	ug/L	<0.16	20	20	17.5	16.9	87	85	67-125	3	30												
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20.3	21.3	101	106	68-137	5	30												
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.1	19.3	95	96	75-131	1	30												
1,3-Dichloropropane	ug/L	<0.070	20	20	18.7	18.6	93	93	71-125	1	30												
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.3	19.3	97	96	74-126	0	30												
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	349	342	87	86	68-125	2	30												
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.4	20.7	102	104	54-129	2	30												
2,2-Dichloropropane	ug/L	<0.17	20	20	19.1	19.1	95	96	69-139	0	30												
2-Butanone (MEK)	ug/L	<0.99	100	100	79.3	77.8	79	78	54-144	2	30												
2-Chlorotoluene	ug/L	<0.16	20	20	19.4	19.9	97	99	75-134	2	30												
2-Hexanone	ug/L	<0.88	100	100	89.7	87.6	90	88	58-137	2	30												
4-Chlorotoluene	ug/L	<0.13	20	20	19.3	19.4	96	97	72-133	1	30												
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	90.1	89.0	90	89	60-129	1	30												
Acetone	ug/L	<9.2	100	100	73.9	72.8	74	73	62-132	2	30												
Acrolein	ug/L	<3.2	200	200	217	210	108	105	30-150	3	30												
Acrylonitrile	ug/L	<0.91	200	200	178	176	89	88	68-125	1	30												
Benzene	ug/L	<0.10	20	20	17.9	18.0	90	90	68-125	0	30												
Bromobenzene	ug/L	<0.21	20	20	18.2	18.6	91	93	73-126	2	30												
Bromochloromethane	ug/L	<0.27	20	20	16.9	16.7	85	83	66-143	1	30												
Bromodichloromethane	ug/L	<0.22	20	20	17.8	17.6	89	88	74-125	1	30												
Bromoform	ug/L	<0.80	20	20	16.8	16.4	84	82	64-134	2	30												
Bromomethane	ug/L	<1.8	20	20	15.7	16.8	78	84	30-150	7	30												
Carbon disulfide	ug/L	<0.19	20	20	16.6	15.6	83	78	43-147	6	30												
Carbon tetrachloride	ug/L	<0.19	20	20	19.3	18.8	96	94	71-143	2	30												
Chlorobenzene	ug/L	<0.17	20	20	19.0	18.9	95	94	75-125	1	30												
Chloroethane	ug/L	<0.49	20	20	21.9	22.4	110	112	75-129	2	30												
Chloroform	ug/L	<0.45	20	20	18.3	18.7	92	93	66-132	2	30												
Chloromethane	ug/L	<0.48	20	20	16.2	15.8	81	79	53-137	2	30												
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	17.4	17.8	87	89	67-133	2	30												
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	18.0	18.1	90	90	66-125	0	30												

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947		3502948		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10503564007 Result	MS Spike Conc.	MSD Spike Conc.									
Dibromochloromethane	ug/L	<0.12	20	20	17.9	18.0	90	90	62-132	1	30		
Dibromomethane	ug/L	<0.16	20	20	17.2	17.0	86	85	67-125	2	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	18.9	18.8	94	94	71-142	1	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	19.5	19.6	97	98	70-131	1	30		
Diisopropyl ether	ug/L	<0.13	20	20	17.0	17.2	85	86	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	17.4	17.9	87	89	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	19.0	18.9	95	94	74-126	0	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	24.9	26.2	124	131	68-143	5	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	20.8	21.3	104	107	74-130	2	30		
m&p-Xylene	ug/L	<0.31	40	40	38.1	38.9	95	97	69-132	2	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	16.8	17.0	84	85	65-131	1	30		
Methylene Chloride	ug/L	<0.98	20	20	17.2	17.6	86	88	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.0	23.4	110	117	71-131	7	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.9	21.6	105	108	67-138	3	30		
Naphthalene	ug/L	<0.48	20	20	19.1	20.6	95	103	60-130	8	30		
o-Xylene	ug/L	<0.16	20	20	18.7	19.1	93	95	69-131	2	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	19.3	20.8	96	104	72-133	7	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.7	23.1	108	116	73-134	7	30		
Styrene	ug/L	<0.19	20	20	18.6	18.6	93	93	72-125	0	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	17.9	18.1	89	90	67-125	1	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	177	175	89	87	64-137	1	30		
tert-Butylbenzene	ug/L	<0.15	20	20	19.5	20.7	98	104	70-143	6	30		
Tetrachloroethene	ug/L	<0.17	20	20	20.2	20.2	101	101	72-129	0	30		
Tetrahydrofuran	ug/L	<2.2	200	200	162	165	81	82	66-128	2	30		
Toluene	ug/L	<0.083	20	20	18.4	18.1	92	90	73-125	1	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	16.8	16.7	84	83	62-137	1	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	17.9	18.2	90	91	61-136	2	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	38.7	38.2	77	76	45-128	1	30		
Trichloroethene	ug/L	<0.15	20	20	17.3	17.2	87	86	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	19.8	19.3	99	96	75-139	3	30		
Vinyl acetate	ug/L	<1.1	20	20	17.0	17.0	85	85	51-135	0	30		
Vinyl chloride	ug/L	<0.092	20	20	16.3	16.1	82	80	68-146	2	30		
Xylene (Total)	ug/L	<0.31	60	60	56.8	58.0	95	97	67-137	2	30		
1,2-Dichloroethane-d4 (S)	%						107	107	75-136				
4-Bromofluorobenzene (S)	%						104	103	75-125				
Toluene-d8 (S)	%						104	104	75-125				

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649484 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 3493142 Matrix: Water
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	12/12/19 12:47	

LABORATORY CONTROL SAMPLE & LCSD: 3493143 3493144

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.5	42.6	106	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493145 3493146

Parameter	Units	10502197007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	639	40	40	693	696	134	142	80-120	0	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3493147 3493148

Parameter	Units	10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	167	40	40	210	210	108	108	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 650375 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 3497258 Matrix: Water
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	5.0J	10.0	5.0	12/17/19 15:41	

LABORATORY CONTROL SAMPLE: 3497259

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1040	104	80-120	

SAMPLE DUPLICATE: 3497260

Parameter	Units	10502148001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	329	247	28	5	D6

SAMPLE DUPLICATE: 3497261

Parameter	Units	10502197005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	868	873	1	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 168797 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 765611 Matrix: Water
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/17/19 12:20	

LABORATORY CONTROL SAMPLE: 765612

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.21	104	90-110	

MATRIX SPIKE SAMPLE: 765614

Parameter	Units	10502148001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.2	0.13	64	75-125	M1

SAMPLE DUPLICATE: 765613

Parameter	Units	10502148001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.0062	<0.0062		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649422 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 3492783 Matrix: Water
Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/11/19 17:06	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/11/19 17:06	
Sulfate	mg/L	0.49J	1.2	0.28	12/11/19 17:06	

LABORATORY CONTROL SAMPLE: 3492784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.9	95	90-110	
Nitrate as N	mg/L	1	0.94	94	90-110	
Sulfate	mg/L	12.5	12.3	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492785 3492786

Parameter	Units	10502148001		10502148002		3492785		3492786		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	2.9	12.5	12.5	17.8	17.8	119	119	90-110	0	20	M1	
Nitrate as N	mg/L	3.0	1	1	3.7	3.7	77	77	90-110	0	20	M1	
Sulfate	mg/L	13.4	12.5	12.5	26.6	26.2	106	103	90-110	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3492787 3492788

Parameter	Units	10502148002		10502148001		3492787		3492788		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	6.6	12.5	12.5	21.0	21.2	115	116	90-110	1	20	M1	
Nitrate as N	mg/L	1.6	1	1	2.6	2.7	104	106	90-110	1	20		
Sulfate	mg/L	8.7	12.5	12.5	23.0	23.2	115	116	90-110	1	20	M1	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649867 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502148002, 10502148003

METHOD BLANK: 3494685 Matrix: Water
Associated Lab Samples: 10502148002, 10502148003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/13/19 16:40	FS

LABORATORY CONTROL SAMPLE: 3494686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494687 3494688

Parameter	Units	10502148002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	1.3	1	1	2.5	2.5	114	115	90-110	0	20	E,M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494689 3494690

Parameter	Units	10502148003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	4.5	5	5	9.2	10.0	96	111	90-110	8	20	E,M1	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649868 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502148001, 10502148004

METHOD BLANK: 3494692 Matrix: Water
Associated Lab Samples: 10502148001, 10502148004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 12:23	

LABORATORY CONTROL SAMPLE: 3494693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.95	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494694 3494695

Parameter	Units	10502148001		10502148004		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	2.6	5	5	7.5	7.6	98	99	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494696 3494697

Parameter	Units	10502148004		10502148004		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	5.1	5	5	9.8	10.0	95	98	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649869 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502148005, 10502148006

METHOD BLANK: 3494702 Matrix: Water
Associated Lab Samples: 10502148005, 10502148006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 13:00	FS

LABORATORY CONTROL SAMPLE: 3494703

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.93	93	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494704 3494705

Parameter	Units	10502148005		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.20	1	1	1.2	1.1	99	86	90-110	12	20	FS,M1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494706 3494707

Parameter	Units	10502148006		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.072J	1	1	1.1	1.2	104	108	90-110	4	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502148

QC Batch: 649894 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502148007

METHOD BLANK: 3494812 Matrix: Water
Associated Lab Samples: 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 13:34	FS

LABORATORY CONTROL SAMPLE: 3494813

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.92	92	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494814 3494815

Parameter	Units	10502148007		3494815		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.								
Nitrogen, NO2 plus NO3	mg/L	0.15	1	1	1	1.2	1.2	105	106	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499947 3499948

Parameter	Units	10502418005		3499948		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.								
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1	1.1	1.1	113	114	90-110	1	20	FS,M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 650359

Analysis Method: EPA 410.4

QC Batch Method: EPA 410.4

Analysis Description: 410.4 COD

Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 3497208

Matrix: Water

Associated Lab Samples: 10502148001, 10502148002, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/17/19 16:20	

LABORATORY CONTROL SAMPLE: 3497209

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	303	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497210 3497211

Parameter	Units	10502148001		10502148002		10502148003		10502148004		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	237	238	95	95	90-110	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497212 3497213

Parameter	Units	10502148002		10502148003		10502148004		10502148005		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	252	247	101	99	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

QC Batch: 181264

Analysis Method: SM 5310C

QC Batch Method: SM 5310C

Analysis Description: 5310C TOC

Associated Lab Samples: 10502148001, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

METHOD BLANK: 716684

Matrix: Water

Associated Lab Samples: 10502148001, 10502148003, 10502148004, 10502148005, 10502148006, 10502148007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/18/19 14:22	

LABORATORY CONTROL SAMPLE: 716685

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.4	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716686 716687

Parameter	Units	716686		716687		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12139305001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	ND	25	25	26.9	26.9	106	106	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716688 716689

Parameter	Units	716688		716689		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	0.58J	25	25	26.7	26.9	105	105	80-120	1	20

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

WORKORDER QUALIFIERS

WO: 10502148

[1] Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

FS The sample was filtered in the laboratory prior to analysis.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

ANALYTE QUALIFIERS

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.
- N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
- P8 Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.
- SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502148001	Silva-GW-121019	RSK175	1400012	RSK-175	1400012
10502148003	MW19D-GW-121019	RSK175	1400012	RSK-175	1400012
10502148004	MW28-GW-121019	RSK175	1400012	RSK-175	1400012
10502148005	MW27-GW-121019	RSK175	1400012	RSK-175	1400012
10502148006	MW14D-GW-121019	RSK175	1400012	RSK-175	1400012
10502148007	MW3D-GW-121019	RSK175	1400012	RSK-175	1400012
10502148001	Silva-GW-121019	EPA 3010	650417	EPA 6010D	650706
10502148002	WS5-GW-121019	EPA 3010	650417	EPA 6010D	650706
10502148003	MW19D-GW-121019	EPA 3010	649497	EPA 6010D	649818
10502148004	MW28-GW-121019	EPA 3010	649497	EPA 6010D	649818
10502148005	MW27-GW-121019	EPA 3010	650417	EPA 6010D	650706
10502148006	MW14D-GW-121019	EPA 3010	649497	EPA 6010D	649818
10502148007	MW3D-GW-121019	EPA 3010	649497	EPA 6010D	649818
10502148001	Silva-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148002	WS5-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148003	MW19D-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148004	MW28-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148005	MW27-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148006	MW14D-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148007	MW3D-GW-121019	EPA 7470A	649501	EPA 7470A	649920
10502148003	MW19D-GW-121019	EPA 8260B	650497		
10502148004	MW28-GW-121019	EPA 8260B	650497		
10502148005	MW27-GW-121019	EPA 8260B	651341		
10502148006	MW14D-GW-121019	EPA 8260B	650497		
10502148007	MW3D-GW-121019	EPA 8260B	650497		
10502148008	TB6,7,8-121019	EPA 8260B	650497		
10502148001	Silva-GW-121019	SM 2320B	649484		
10502148002	WS5-GW-121019	SM 2320B	649484		
10502148003	MW19D-GW-121019	SM 2320B	649484		
10502148004	MW28-GW-121019	SM 2320B	649484		
10502148005	MW27-GW-121019	SM 2320B	649484		
10502148006	MW14D-GW-121019	SM 2320B	649484		
10502148007	MW3D-GW-121019	SM 2320B	649484		
10502148001	Silva-GW-121019	SM 2540C	650375		
10502148002	WS5-GW-121019	SM 2540C	650375		
10502148003	MW19D-GW-121019	SM 2540C	650375		
10502148004	MW28-GW-121019	SM 2540C	650375		
10502148005	MW27-GW-121019	SM 2540C	650375		
10502148006	MW14D-GW-121019	SM 2540C	650375		
10502148007	MW3D-GW-121019	SM 2540C	650375		
10502148001	Silva-GW-121019	SM 4500-S-2 D	168797		
10502148002	WS5-GW-121019	SM 4500-S-2 D	168797		
10502148003	MW19D-GW-121019	SM 4500-S-2 D	168797		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502148

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502148004	MW28-GW-121019	SM 4500-S-2 D	168797		
10502148005	MW27-GW-121019	SM 4500-S-2 D	168797		
10502148006	MW14D-GW-121019	SM 4500-S-2 D	168797		
10502148007	MW3D-GW-121019	SM 4500-S-2 D	168797		
10502148001	Silva-GW-121019	EPA 300.0	649422		
10502148002	WS5-GW-121019	EPA 300.0	649422		
10502148003	MW19D-GW-121019	EPA 300.0	649422		
10502148004	MW28-GW-121019	EPA 300.0	649422		
10502148005	MW27-GW-121019	EPA 300.0	649422		
10502148006	MW14D-GW-121019	EPA 300.0	649422		
10502148007	MW3D-GW-121019	EPA 300.0	649422		
10502148001	Silva-GW-121019	EPA 353.2	649868		
10502148002	WS5-GW-121019	EPA 353.2	649867		
10502148003	MW19D-GW-121019	EPA 353.2	649867		
10502148004	MW28-GW-121019	EPA 353.2	649868		
10502148005	MW27-GW-121019	EPA 353.2	649869		
10502148006	MW14D-GW-121019	EPA 353.2	649869		
10502148007	MW3D-GW-121019	EPA 353.2	649894		
10502148001	Silva-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148002	WS5-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148003	MW19D-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148004	MW28-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148005	MW27-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148006	MW14D-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148007	MW3D-GW-121019	EPA 410.4	650359	EPA 410.4	650432
10502148001	Silva-GW-121019	SM 5310C	181264		
10502148003	MW19D-GW-121019	SM 5310C	181264		
10502148004	MW28-GW-121019	SM 5310C	181264		
10502148005	MW27-GW-121019	SM 5310C	181264		
10502148006	MW14D-GW-121019	SM 5310C	181264		
10502148007	MW3D-GW-121019	SM 5310C	181264		

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502148**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 747594008418, 747594008392, 747594008407

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>-0.4, -0.5, -0.1</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>1.01</u>	Cooler Temp Corrected w/temp blank: <u>-0.3, -0.4, 0.0</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 12/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <u>Trip blanks are all unlabeled</u> See Exception <input type="checkbox"/>
Matrix: <input type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ 1/1 <input checked="" type="checkbox"/> H ₂ SO ₄ 1/1 <input checked="" type="checkbox"/> Zinc Acetate 1/1
Exceptions: <u>VOA</u> , Coliform, <u>TOC</u> /DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes See Exception <input type="checkbox"/> Chlorine? <input type="checkbox"/> No pH Paper Lot#
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine <u>0-6 Roll 203619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>236659, 237175</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased) <u>236957</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: Mark, Brad, Steve, Jon Date/Time: 12/12/19

Comments/Resolution: Notified client of temperature and trip blank labels.

Method 8260 for sample Silva-GW analyzed under separate cover.

Project Manager Review: JENNI GROSS **Date:** 12/12/19

Note: Whenever there is a discrepancy affect compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Chain of Custody



☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes

Owner Received Date: 12/11/2019 Results Requested By: 12/26/2019

Workorder: 10502148

Workorder Name: Freeman WA-Cenex Harvest Lease

Report To		Subcontract To			Requested Analysis										LAB USE ONLY											
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042																								
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers																				
						H ₂ SO ₄ DG9S								5632354 / 5310 TOC	5632354 / 5310 TOC											
1	Silva-GW-121019	RQS	12/10/2019 08:30	10502148001	Water	6									X	X										MS / MSD
2	MW19D-GW-121019	PS	12/10/2019 11:00	10502148003	Water	2										X										
3	MW28-GW-121019	PS	12/10/2019 11:45	10502148004	Water	2										X										
4	MW27-GW-121019	PS	12/10/2019 12:30	10502148005	Water	2										X										
5	MW14D-GW-121019	PS	12/10/2019 13:45	10502148006	Water	2										X										
6	MW3D-GW-121019	PS	12/10/2019 14:30	10502148007	Water	2										X										

Transfers					Comments				
Released By	Date/Time	Received By	Date/Time						
JM Pace	12/19/2019	B. Matthews	12/19/2019 12:45						

Cooler Temperature on Receipt 1.4 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

WO# : 12139343

PM: RK1 Due Date: 12/27/19
CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No **Optional:** Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.3 Cooler Temp Corrected °C: 1.4 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: BN 12/13/19

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lavonia Ferrier Date: 12/13/19

Note: Whenever there is a discrepancy affecting _____ samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



PRE_LOGGED

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10502148

Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/11/2019

Results Requested By: 12/26/2019

Report To		Subcontract To		Requested Analysis															
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333																	
				PRESERVED CONTAINERS															
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NO. OF CONTAINERS	1	2	3	4	5	6	7	8	9	10	11	12	LAB USE ONLY
1	Silva-GW-121019	RQS	12/10/2019 08:30	10502148001	Water	3													MS/MSD
2	WS5-GW-121019	PS	12/10/2019 09:00	10502148002	Water	1													
3	MW19D-GW-121019	PS	12/10/2019 11:00	10502148003	Water	1													
4	MW28-GW-121019	PS	12/10/2019 11:45	10502148004	Water	1													
5	MW27-GW-121019	PS	12/10/2019 12:30	10502148005	Water	1													
6	MW14D-GW-121019	PS	12/10/2019 13:45	10502148006	Water	1													
7	MW3D-GW-121019	PS	12/10/2019 14:30	10502148007	Water	1													
Comments																			
Transfers	Released By	Date/Time	Received By	Date/Time															
1	<i>[Signature]</i>	12/12/19 15:40	Fred Ferguson																
2		12/13/19 08:30	<i>[Signature]</i>	12/13/19 08:30															
3																			
Cooler Temperature on Receipt		5 °C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact											Y or N	

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upon

PM: CMM

Due Date: 12/26/19

CLIENT: PASI-MINN

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Pr

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12-13-19 AB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No



Workorder: 10502148 Workorder Name: Freeman WA-Cenex Harvest Lease Owner Received Date: 12/11/2019 Results Requested By: 12/26/2019

Report To		Subcontract To					Requested Analysis									
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710					<div style="text-align: right; font-size: 24px; font-weight: bold;">A191</div> <div style="text-align: right; font-size: 24px; font-weight: bold;">L1170590</div>									
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				5644436 / RSK-175		5644436 / RSK-175		LAB USE ONLY		
						HCl	VG	9H								
1	Silva-GW-121019	RQS	12/10/2019 08:30	10502148001	Water	9					X	X			MS/MSD -01	
2	MW19D-GW-121019	PS	12/10/2019 11:00	10502148003	Water	3						X			-02	
3	MW28-GW-121019	PS	12/10/2019 11:45	10502148004	Water	3						X			-03	
4	MW27-GW-121019	PS	12/10/2019 12:30	10502148005	Water	3						X			-04	
5	MW14D-GW-121019	PS	12/10/2019 13:45	10502148006	Water	3						X			-05	
6	MW3D-GW-121019	PS	12/10/2019 14:30	10502148007	Water	3						X			-06	
Transfers													Comments			
Released By	Date/Time	Received By	Date/Time													
<i>[Signature]</i>	12/10/19 1520															
Cooler Temperature on Receipt .9 °C		Custody Seal <input checked="" type="checkbox"/> or N		Received on Ice <input checked="" type="checkbox"/> or N		Samples Intact <input checked="" type="checkbox"/> or N										


***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

*.9 ± 0 = .9 uM
 AL*

RAD SCREEN: <0.5 mR/hr

Cont. -24 FedEx - 1320 7518 4127

(NO TRIP) MS 12.13.19/0845

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502148**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 747594008418, 747594008392, 747594008407

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks) L1170590

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** -0.4, -0.5, -0.1 °C **Average Corrected Temp (no temp blank only):** See Exceptions 1 Container

Correction Factor: 0.1 **Cooler Temp Corrected w/temp blank:** -0.3, -0.4, 0.0 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 12/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (Internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? -Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? Matrix: <input type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <u>Trip blanks are all unlabeled</u> See Exception <input type="checkbox"/>
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ 1/11 <input checked="" type="checkbox"/> H ₂ SO ₄ 1/11 <input checked="" type="checkbox"/> Zinc Acetate 1/11
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No See Exception
Exceptions: <u>VOA</u> , Coliform, <u>(TOC)</u> DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip <u>203619</u>
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased) <u>236659, 237173, 236957</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: Mark, Brad, Steve, Jon Date/Time: 12/12/19

Comments/Resolution: Notified client of temperature and trip blank labels.

Method 8260 for sample Silva-GW analyzed under separate cover.

Project Manager Review: JENNIFER GROSS **Date:** 12/12/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: SS (2)

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	L1170590		
Cooler Received/Opened On:	12/13/19	Temperature:	0.9
Received By: Monte Smith			
Signature: <i>Monte Smith</i>			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VQA Zero headspace?		✓	
Preservation Correct / Checked?			

December 19, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

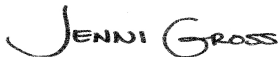
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502151

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502151001	Silva-GW-121019	Water	12/10/19 08:30	12/11/19 08:50

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502151

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502151001	Silva-GW-121019	EPA 8260B	AEZ	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 19, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3497802)
 - Acrolein
 - Bromomethane
- MS (Lab ID: 3497803)
 - Acrolein
 - Bromomethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3497802)
 - Acrolein
- MS (Lab ID: 3497803)
 - Acrolein
- MSD (Lab ID: 3497804)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 19, 2019

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 650497

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3497802)
 - 1,1,2-Trichlorotrifluoroethane
 - Acrolein
 - Dichlorofluoromethane

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650497

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502151001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3497803)
 - Acrolein
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Dichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497803)
 - 2,2-Dichloropropane
 - Chloroethane
 - Chloromethane
 - Trichlorofluoromethane
 - Vinyl chloride
- MSD (Lab ID: 3497804)
 - 2,2-Dichloropropane
 - Chloroethane
 - Trichlorofluoromethane
 - Vinyl chloride

Additional Comments:

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3497801)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 19, 2019

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3497802)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3497803)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3497804)
 - 1,2-Dichloroethene (Total)
- Silva-GW-121019 (Lab ID: 10502151001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3497801)
 - Dichlorofluoromethane
- LCS (Lab ID: 3497802)
 - Dichlorofluoromethane
- MS (Lab ID: 3497803)
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Sample: Silva-GW-121019 **Lab ID: 10502151001** Collected: 12/10/19 08:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 01:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 01:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 01:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 01:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 01:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 01:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 01:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 01:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 01:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 01:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 01:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 01:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 01:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 01:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 01:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 01:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:22	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 01:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 01:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 01:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 01:22	594-20-7	M1
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 01:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 01:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 01:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 01:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 01:22	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 01:22	107-02-8	M0
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 01:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 01:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 01:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 01:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 01:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 01:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 01:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 01:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/18/19 01:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 01:22	75-00-3	M1
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 01:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 01:22	74-87-3	M1
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 01:22	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Sample: Silva-GW-121019 **Lab ID: 10502151001** Collected: 12/10/19 08:30 Received: 12/11/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 01:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 01:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 01:22	75-43-4	M0
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 01:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 01:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 01:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 01:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 01:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 01:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 01:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 01:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 01:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 01:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 01:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 01:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 01:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 01:22	75-69-4	M1
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 01:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 01:22	75-01-4	M1
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 01:22	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 01:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 01:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 01:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 01:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 01:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 01:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 01:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 01:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 01:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 01:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 01:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 01:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	121	%	75-136		1		12/18/19 01:22	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/18/19 01:22	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1		12/18/19 01:22	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502151

QC Batch: 650497 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502151001

METHOD BLANK: 3497801 Matrix: Water
Associated Lab Samples: 10502151001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	12/17/19 22:58	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/17/19 22:58	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/17/19 22:58	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/17/19 22:58	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/17/19 22:58	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/17/19 22:58	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/17/19 22:58	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/17/19 22:58	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/17/19 22:58	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/17/19 22:58	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/17/19 22:58	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/17/19 22:58	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/17/19 22:58	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/17/19 22:58	
Acetone	ug/L	<9.2	20.0	9.2	12/17/19 22:58	
Acrolein	ug/L	<3.2	100	3.2	12/17/19 22:58	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/17/19 22:58	
Benzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/17/19 22:58	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
Bromoform	ug/L	<0.80	4.0	0.80	12/17/19 22:58	
Bromomethane	ug/L	<1.8	4.0	1.8	12/17/19 22:58	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/17/19 22:58	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/17/19 22:58	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

METHOD BLANK: 3497801

Matrix: Water

Associated Lab Samples: 10502151001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Chloroethane	ug/L	<0.49	1.0	0.49	12/17/19 22:58	
Chloroform	ug/L	<0.45	4.0	0.45	12/17/19 22:58	
Chloromethane	ug/L	<0.48	4.0	0.48	12/17/19 22:58	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	12/17/19 22:58	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/17/19 22:58	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/17/19 22:58	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/17/19 22:58	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Naphthalene	ug/L	<0.48	1.0	0.48	12/17/19 22:58	
o-Xylene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Styrene	ug/L	<0.19	0.50	0.19	12/17/19 22:58	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/17/19 22:58	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/17/19 22:58	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Tetrahydrofuran	ug/L	<2.2	40.0	2.2	12/17/19 22:58	
Toluene	ug/L	<0.083	0.50	0.083	12/17/19 22:58	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/17/19 22:58	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/17/19 22:58	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/17/19 22:58	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/17/19 22:58	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/17/19 22:58	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/17/19 22:58	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/17/19 22:58	
1,2-Dichloroethane-d4 (S)	%	117	75-136		12/17/19 22:58	
4-Bromofluorobenzene (S)	%	111	75-125		12/17/19 22:58	
Toluene-d8 (S)	%	102	75-125		12/17/19 22:58	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	100	68-141	
1,1,1-Trichloroethane	ug/L	20	21.2	106	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	26.5	133	69-132	L3
1,1-Dichloroethane	ug/L	20	23.7	118	73-125	
1,1-Dichloroethene	ug/L	20	22.0	110	71-126	
1,1-Dichloropropene	ug/L	20	21.3	106	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.0	90	72-126	
1,2,3-Trichloropropane	ug/L	20	20.6	103	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.0	85	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.1	101	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.3	91	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	101	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	41.0	102	74-125	N2
1,2-Dichloropropane	ug/L	20	21.7	109	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-127	
1,3-Dichlorobenzene	ug/L	20	20.7	104	75-126	
1,3-Dichloropropane	ug/L	20	21.0	105	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	422	106	72-129	
2,2,4-Trimethylpentane	ug/L	20	20.5	103	72-128	
2,2-Dichloropropane	ug/L	20	23.8	119	65-138	
2-Butanone (MEK)	ug/L	100	104	104	59-144	
2-Chlorotoluene	ug/L	20	20.9	105	75-127	
2-Hexanone	ug/L	100	99.0	99	73-134	
4-Chlorotoluene	ug/L	20	20.2	101	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.9	98	62-141	
Acetone	ug/L	100	110	110	60-137	
Acrolein	ug/L	200	306	153	60-141	CH,L3,SS
Acrylonitrile	ug/L	200	216	108	75-129	
Benzene	ug/L	20	21.0	105	73-125	
Bromobenzene	ug/L	20	20.4	102	73-125	
Bromochloromethane	ug/L	20	17.2	86	75-135	
Bromodichloromethane	ug/L	20	21.4	107	75-125	
Bromoform	ug/L	20	21.2	106	67-136	
Bromomethane	ug/L	20	21.8	109	30-150	SS
Carbon disulfide	ug/L	20	18.6	93	47-137	
Carbon tetrachloride	ug/L	20	20.5	102	75-125	
Chlorobenzene	ug/L	20	20.1	101	75-125	
Chloroethane	ug/L	20	22.3	111	63-136	
Chloroform	ug/L	20	18.9	95	73-128	
Chloromethane	ug/L	20	18.1	90	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.2	106	75-125	
Dibromomethane	ug/L	20	17.7	88	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	27.7	139	68-127	L3
Diisopropyl ether	ug/L	20	23.0	115	71-131	
Ethyl-tert-butyl ether	ug/L	20	21.2	106	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.5	87	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.1	96	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-126	
Methyl-tert-butyl ether	ug/L	20	23.4	117	75-125	
Methylene Chloride	ug/L	20	24.0	120	70-125	
n-Butylbenzene	ug/L	20	21.5	107	75-126	
n-Propylbenzene	ug/L	20	20.5	103	73-127	
Naphthalene	ug/L	20	19.1	96	63-128	
o-Xylene	ug/L	20	18.8	94	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	18.7	93	75-125	
tert-Amylmethyl ether	ug/L	20	20.9	104	75-125	
tert-Butyl Alcohol	ug/L	200	244	122	75-130	
tert-Butylbenzene	ug/L	20	20.1	101	75-131	
Tetrachloroethene	ug/L	20	18.8	94	74-125	
Tetrahydrofuran	ug/L	200	146	73	64-138	
Toluene	ug/L	20	19.4	97	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	68-128	
trans-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5	99	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	23.9	120	72-133	
Vinyl acetate	ug/L	20	20.8	104	61-129	
Vinyl chloride	ug/L	20	23.0	115	75-128	
Xylene (Total)	ug/L	60	57.4	96	75-125	
1,2-Dichloroethane-d4 (S)	%			111	75-136	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502151001	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.1	19.4	100	97	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.2	25.6	111	128	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	22.6	23.5	113	118	66-134	4	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.9	20.3	100	102	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3497803		3497804									
Parameter	Units	10502151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	29.0	28.1	145	141	65-146	3	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.7	24.4	123	122	68-132	1	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	23.8	23.3	119	116	66-139	2	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	21.6	24.5	108	122	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	17.8	18.5	89	92	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20.7	21.6	104	108	69-128	4	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	16.9	17.9	84	90	65-140	6	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.9	20.1	100	101	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.4	48.4	95	97	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	18.9	19.5	94	98	68-125	4	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.7	20.3	98	101	74-136	3	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	19.7	19.5	99	98	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	44.1	44.3	110	111	71-126	0	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.1	21.3	106	106	67-125	1	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.8	20.3	99	102	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.7	20.4	99	102	75-131	3	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	20.2	20.6	101	103	71-125	2	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.4	19.6	97	98	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	353	390	88	98	68-125	10	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.5	20.3	103	102	54-129	1	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	28.2	29.1	141	145	69-139	3	30	M1	
2-Butanone (MEK)	ug/L	<0.99	100	100	99.7	107	100	107	54-144	7	30		
2-Chlorotoluene	ug/L	<0.16	20	20	20.6	21.0	103	105	75-134	2	30		
2-Hexanone	ug/L	<0.88	100	100	99.3	101	99	101	58-137	2	30		
4-Chlorotoluene	ug/L	<0.13	20	20	19.6	20.2	98	101	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	102	104	102	104	60-129	2	30		
Acetone	ug/L	<9.2	100	100	91.8	88.7	92	89	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	389	379	195	190	30-150	3	30	CH, M0,SS	
Acrylonitrile	ug/L	<0.91	200	200	229	235	115	118	68-125	3	30		
Benzene	ug/L	<0.10	20	20	20.3	20.5	102	102	68-125	1	30		
Bromobenzene	ug/L	<0.21	20	20	19.3	20.2	96	101	73-126	5	30		
Bromochloromethane	ug/L	<0.27	20	20	19.5	19.8	98	99	66-143	1	30		
Bromodichloromethane	ug/L	<0.22	20	20	21.0	21.3	105	106	74-125	1	30		
Bromoform	ug/L	<0.80	20	20	20.9	21.6	104	108	64-134	3	30		
Bromomethane	ug/L	<1.8	20	20	28.0	27.8	140	139	30-150	1	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	18.6	18.2	93	91	43-147	3	30		
Carbon tetrachloride	ug/L	<0.19	20	20	24.6	25.8	123	129	71-143	5	30		
Chlorobenzene	ug/L	<0.17	20	20	19.3	19.6	97	98	75-125	1	30		
Chloroethane	ug/L	<0.49	20	20	33.6	28.4	168	142	75-129	17	30	M1	
Chloroform	ug/L	<0.45	20	20	21.8	22.0	109	110	66-132	1	30		
Chloromethane	ug/L	<0.48	20	20	27.7	25.8	139	129	53-137	7	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	20.9	22.1	105	110	67-133	5	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	18.8	95	94	66-125	1	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Parameter	Units	10502151001		3497803		3497804		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.4	21.1	102	105	62-132	3	30			
Dibromomethane	ug/L	<0.16	20	20	16.5	16.7	83	83	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.5	25.5	132	127	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	31.0	29.7	155	149	70-131	4	30	M0		
Diisopropyl ether	ug/L	<0.13	20	20	24.0	23.9	120	119	63-131	1	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	24.0	107	120	66-128	11	30			
Ethylbenzene	ug/L	<0.14	20	20	19.5	19.6	98	98	74-126	0	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	17.5	17.9	87	90	68-143	3	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	19.1	19.3	95	96	74-130	1	30			
m&p-Xylene	ug/L	<0.31	40	40	37.6	38.0	94	95	69-132	1	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	24.8	23.2	124	116	65-131	6	30			
Methylene Chloride	ug/L	<0.98	20	20	23.5	23.4	116	115	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	20	20	21.3	21.8	107	109	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	20	20	20.4	21.3	102	106	67-138	4	30			
Naphthalene	ug/L	<0.48	20	20	19.7	19.7	99	99	60-130	0	30			
o-Xylene	ug/L	<0.16	20	20	18.4	18.5	92	93	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	20.3	21.2	102	106	72-133	4	30			
sec-Butylbenzene	ug/L	<0.15	20	20	21.3	21.7	106	108	73-134	2	30			
Styrene	ug/L	<0.19	20	20	18.1	18.3	91	91	72-125	1	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	20.2	20.6	101	103	67-125	2	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	212	229	106	115	64-137	8	30			
tert-Butylbenzene	ug/L	<0.15	20	20	20.5	21.0	102	105	70-143	3	30			
Tetrachloroethene	ug/L	<0.17	20	20	18.4	19.0	92	95	72-129	3	30			
Tetrahydrofuran	ug/L	<2.2	200	200	141	174	70	87	66-128	21	30			
Toluene	ug/L	<0.083	20	20	18.8	19.2	94	96	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	23.1	22.2	116	111	62-137	4	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	20.7	21.0	104	105	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	49.8	52.0	100	104	45-128	4	30			
Trichloroethene	ug/L	<0.15	20	20	19.2	19.4	96	97	74-132	1	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	31.0	32.0	155	160	75-139	3	30	M1		
Vinyl acetate	ug/L	<1.1	20	20	19.8	22.4	99	112	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	32.3	31.9	161	159	68-146	1	30	M1		
Xylene (Total)	ug/L	<0.31	60	60	56.0	56.5	93	94	67-137	1	30			
1,2-Dichloroethane-d4 (S)	%						113	111	75-136					
4-Bromofluorobenzene (S)	%						101	106	75-125					
Toluene-d8 (S)	%						98	100	75-125					

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502151

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

WORKORDER QUALIFIERS

WO: 10502151

[1] Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius.

ANALYTE QUALIFIERS

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502151

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502151001	Silva-GW-121019	EPA 8260B	650497		

REPORT OF LABORATORY ANALYSIS

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Section A

Required Client Information:

Company: UPRR Jacobs
Address: 999 W. Riverside Ave, Suite 500
Spokane, WA 99201
Email:
Phone:
Fax:
Requested Due Date: 10 Day Standard

Section B

Required Project Information:

Report To: Mark Ochsner, Brad Ostapkowicz
Copy To: Steve Demus, Jonathan Espinoza
Copy To: David Hodson, UPRR-Sysdat@ghd.com
Purchase Order # PEDD# 1497
Project Name: Freeman WA-Cenex Harvest Lease
Project #: 1497

Section C

Invoice Information:

Attention: Anne Walsh
Company: UPRR
Address: 1400 W. 52nd Ave, Denver, CO 80221
Pace Quote: Contract# 9900758938
Pace Project Manager: Jennifer Gross
Pace Profile #: 36447 / 4



10502151

Of 1

Main data table with columns for Item #, Sample ID, Matrix Code, Sample Type, Date/Time, Temp at Collection, # of Containers, Preservatives, and various Analytical Tests (e.g., VOCs, Alkalinity, Chloride, Nitrate, etc.).

Summary table with columns: Additional Comments, Relinquished By/Affiliation, Date/Time, Accepted By/Affiliation, Date/Time, Sample Conditions (Received on Ice, Custody Sealed, Cooler, Samples Intact).

Signature block for the sampler, including fields for Name and Signature of Sampler, Date Signed, and Temperature in C.

Sample Condition Upon Receipt

Client Name: UPRR Jacobs
Project #: WO# : 10502151

WO# : 10502151
PM: JMG Due Date: 12/26/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 747594086418

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>-0.4</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>+0.1</u>	Cooler Temp Corrected w/temp blank: <u>-0.3</u> °C	

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 12/12/19
Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. shared w/ wo# 10502148 Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Mark, Brad, Steve, Jon Date/Time: 12/12/19 Field Data Required? Yes No
Comments/Resolution: Client notified on temperature. MS/MSD requested on separate coc.

Project Manager Review:

Note: Whenever there is a discrepancy affecting N compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).
Date: 12/12/19

December 30, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

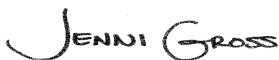
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #: 74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502418001	MW6U-GW-121219	Water	12/12/19 10:15	12/13/19 09:00
10502418002	MW6D-GW-121219	Water	12/12/19 11:00	12/13/19 09:00
10502418003	MW18D-GW-121219	Water	12/12/19 12:00	12/13/19 09:00
10502418004	MW16D-GW-121219	Water	12/12/19 12:30	12/13/19 09:00
10502418005	MW17D-GW-121219	Water	12/12/19 13:30	12/13/19 09:00
10502418006	TB1-121219	Water	12/12/19 07:00	12/13/19 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502418001	MW6U-GW-121219	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	AEZ	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502418002	MW6D-GW-121219	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502418003	MW18D-GW-121219	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502418004	MW16D-GW-121219	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502418005	MW17D-GW-121219	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502418006	TB1-121219	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10502418001	MW6U-GW-121219					
EPA 6010D	Arsenic, Dissolved	4.6J	ug/L	20.0	12/22/19 11:12	
EPA 6010D	Barium, Dissolved	60.1	ug/L	10.0	12/22/19 11:12	
EPA 6010D	Chromium, Dissolved	0.91J	ug/L	10.0	12/22/19 11:12	
EPA 6010D	Copper, Dissolved	1.5J	ug/L	10.0	12/22/19 11:12	
EPA 6010D	Vanadium, Dissolved	6.1J	ug/L	15.0	12/22/19 11:12	
EPA 7470A	Mercury, Dissolved	0.33	ug/L	0.20	12/20/19 13:34	
EPA 8260B	Carbon disulfide	0.21J	ug/L	1.0	12/18/19 05:21	
EPA 8260B	Carbon tetrachloride	80.9	ug/L	2.5	12/20/19 04:52	
EPA 8260B	Chloroform	4.6	ug/L	4.0	12/18/19 05:21	
SM 2320B	Alkalinity, Total as CaCO3	212	mg/L	5.0	12/18/19 12:40	
SM 2540C	Total Dissolved Solids	312	mg/L	10.0	12/19/19 12:00	
EPA 300.0	Chloride	23.0	mg/L	1.2	12/13/19 13:08	
EPA 300.0	Nitrate as N	2.1	mg/L	0.10	12/13/19 13:08	
EPA 300.0	Sulfate	8.8	mg/L	1.2	12/13/19 13:08	
EPA 353.2	Nitrogen, NO2 plus NO3	1.8	mg/L	0.10	12/19/19 13:13	
SM 5310C	Total Organic Carbon	2.4	mg/L	1.0	12/18/19 20:24	
10502418002	MW6D-GW-121219					
EPA 6010D	Barium, Dissolved	9.1J	ug/L	10.0	12/22/19 11:28	
EPA 6010D	Nickel, Dissolved	1.2J	ug/L	20.0	12/22/19 11:28	
EPA 6010D	Vanadium, Dissolved	5.8J	ug/L	15.0	12/22/19 11:28	
EPA 8260B	Carbon tetrachloride	0.48J	ug/L	0.50	12/22/19 00:05	
SM 2320B	Alkalinity, Total as CaCO3	172	mg/L	5.0	12/18/19 13:09	
SM 2540C	Total Dissolved Solids	223	mg/L	10.0	12/19/19 12:00	
EPA 300.0	Chloride	2.6	mg/L	1.2	12/13/19 13:28	M1
EPA 300.0	Nitrate as N	0.063J	mg/L	0.10	12/13/19 13:28	M1
EPA 300.0	Sulfate	6.6	mg/L	1.2	12/13/19 13:28	
EPA 353.2	Nitrogen, NO2 plus NO3	0.034J	mg/L	0.10	12/19/19 13:15	
10502418003	MW18D-GW-121219					
EPA 6010D	Barium, Dissolved	51.6	ug/L	10.0	12/22/19 11:30	
SM 2320B	Alkalinity, Total as CaCO3	155	mg/L	5.0	12/18/19 13:14	
SM 2540C	Total Dissolved Solids	188	mg/L	10.0	12/19/19 12:00	
EPA 300.0	Chloride	2.7	mg/L	1.2	12/13/19 13:47	
EPA 300.0	Sulfate	8.2	mg/L	1.2	12/13/19 13:47	
SM 5310C	Total Organic Carbon	0.41J	mg/L	1.0	12/18/19 22:21	
10502418004	MW16D-GW-121219					
EPA 6010D	Barium, Dissolved	64.4	ug/L	10.0	12/22/19 11:45	
EPA 6010D	Chromium, Dissolved	0.93J	ug/L	10.0	12/22/19 11:45	
EPA 6010D	Vanadium, Dissolved	9.6J	ug/L	15.0	12/22/19 11:45	
SM 2320B	Alkalinity, Total as CaCO3	159	mg/L	5.0	12/18/19 13:20	
SM 2540C	Total Dissolved Solids	366	mg/L	10.0	12/19/19 12:00	
EPA 300.0	Chloride	10.4	mg/L	1.2	12/13/19 21:07	
EPA 300.0	Nitrate as N	10	mg/L	0.50	12/22/19 14:43	
EPA 300.0	Sulfate	31.9	mg/L	1.2	12/13/19 21:07	
EPA 353.2	Nitrogen, NO2 plus NO3	7.7	mg/L	1.0	12/19/19 17:02	
SM 5310C	Total Organic Carbon	0.96J	mg/L	1.0	12/18/19 22:34	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502418005	MW17D-GW-121219					
EPA 6010D	Barium, Dissolved	52.7	ug/L	10.0	12/22/19 11:48	
EPA 6010D	Chromium, Dissolved	1.1J	ug/L	10.0	12/22/19 11:48	
EPA 6010D	Copper, Dissolved	1.5J	ug/L	10.0	12/22/19 11:48	
EPA 6010D	Molybdenum, Dissolved	8.9J	ug/L	15.0	12/22/19 11:48	
EPA 6010D	Nickel, Dissolved	1.7J	ug/L	20.0	12/22/19 11:48	
EPA 6010D	Vanadium, Dissolved	4.1J	ug/L	15.0	12/22/19 11:48	
EPA 6010D	Zinc, Dissolved	32.1	ug/L	20.0	12/22/19 11:48	
SM 2320B	Alkalinity, Total as CaCO ₃	158	mg/L	5.0	12/20/19 13:02	
SM 2540C	Total Dissolved Solids	296	mg/L	10.0	12/19/19 12:00	
EPA 300.0	Chloride	28.5	mg/L	1.2	12/13/19 21:26	
EPA 300.0	Nitrate as N	0.092J	mg/L	0.10	12/13/19 21:26	
EPA 300.0	Sulfate	53.3	mg/L	1.2	12/13/19 21:26	
SM 5310C	Total Organic Carbon	3.2	mg/L	1.0	12/18/19 22:47	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3497802)
 - Acrolein
 - Bromomethane
- MS (Lab ID: 3497803)
 - Acrolein
 - Bromomethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3497802)
 - Acrolein
- MS (Lab ID: 3497803)
 - Acrolein
- MSD (Lab ID: 3497804)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 650497

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3497802)
 - 1,1,2-Trichlorotrifluoroethane
 - Acrolein
 - Dichlorofluoromethane

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650497

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502151001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3497803)
 - Acrolein
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Dichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497803)
 - 2,2-Dichloropropane
 - Chloroethane
 - Chloromethane
 - Trichlorofluoromethane
 - Vinyl chloride
- MSD (Lab ID: 3497804)
 - 2,2-Dichloropropane
 - Chloroethane
 - Trichlorofluoromethane
 - Vinyl chloride

Additional Comments:

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3497801)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3497802)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3497803)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3497804)
 - 1,2-Dichloroethene (Total)
- MW6U-GW-121219 (Lab ID: 10502418001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3497801)
 - Dichlorofluoromethane
- LCS (Lab ID: 3497802)
 - Dichlorofluoromethane
- MS (Lab ID: 3497803)
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Dichlorofluoromethane

QC Batch: 651341

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3502945)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3502946)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3502947)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3502948)
 - 1,2-Dichloroethene (Total)
- MW16D-GW-121219 (Lab ID: 10502418004)
 - 1,2-Dichloroethene (Total)
- MW17D-GW-121219 (Lab ID: 10502418005)
 - 1,2-Dichloroethene (Total)
- MW18D-GW-121219 (Lab ID: 10502418003)
 - 1,2-Dichloroethene (Total)
- MW6D-GW-121219 (Lab ID: 10502418002)
 - 1,2-Dichloroethene (Total)
- TB1-121219 (Lab ID: 10502418006)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3502945)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

Analyte Comments:

QC Batch: 651341

- LCS (Lab ID: 3502946)
 - Dichlorofluoromethane
- MS (Lab ID: 3502947)
 - Dichlorofluoromethane
- MSD (Lab ID: 3502948)
 - Dichlorofluoromethane
- MW16D-GW-121219 (Lab ID: 10502418004)
 - Dichlorofluoromethane
- MW17D-GW-121219 (Lab ID: 10502418005)
 - Dichlorofluoromethane
- MW18D-GW-121219 (Lab ID: 10502418003)
 - Dichlorofluoromethane
- MW6D-GW-121219 (Lab ID: 10502418002)
 - Dichlorofluoromethane
- TB1-121219 (Lab ID: 10502418006)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650776

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502418005,10502671003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3500420)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3500421)
 - Alkalinity, Total as CaCO₃

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 169011

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20134334001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 766755)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649885

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502418001,10502418002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494767)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3494768)
 - Chloride
 - Nitrate as N

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649894

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148007,10502418005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3499947)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3499948)
 - Nitrogen, NO2 plus NO3

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW6U-GW-121219 **Lab ID: 10502418001** Collected: 12/12/19 10:15 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:00	12/19/19 14:00	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:00	12/19/19 14:00	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:00	12/19/19 14:00	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:12	7440-36-0	
Arsenic, Dissolved	4.6J	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:12	7440-38-2	
Barium, Dissolved	60.1	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:12	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:12	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:12	7440-43-9	
Chromium, Dissolved	0.91J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:12	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:12	7440-48-4	
Copper, Dissolved	1.5J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:12	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:12	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:12	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:12	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:12	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:12	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:12	7440-28-0	
Vanadium, Dissolved	6.1J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:12	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:12	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	0.33	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:34	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 05:21	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 05:21	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 05:21	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 05:21	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 05:21	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 05:21	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 05:21	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 05:21	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 05:21	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 05:21	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 05:21	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 05:21	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 05:21	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 05:21	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 05:21	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 05:21	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 05:21	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 05:21	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 05:21	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 05:21	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW6U-GW-121219 **Lab ID: 10502418001** Collected: 12/12/19 10:15 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 05:21	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 05:21	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 05:21	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 05:21	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 05:21	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 05:21	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 05:21	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 05:21	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 05:21	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 05:21	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 05:21	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 05:21	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 05:21	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 05:21	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 05:21	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 05:21	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 05:21	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 05:21	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 05:21	74-83-9	
Carbon disulfide	0.21J	ug/L	1.0	0.19	1		12/18/19 05:21	75-15-0	
Carbon tetrachloride	80.9	ug/L	2.5	0.94	5		12/20/19 04:52	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 05:21	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 05:21	75-00-3	
Chloroform	4.6	ug/L	4.0	0.45	1		12/18/19 05:21	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 05:21	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 05:21	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 05:21	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 05:21	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 05:21	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 05:21	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 05:21	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 05:21	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 05:21	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 05:21	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 05:21	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 05:21	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 05:21	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 05:21	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 05:21	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 05:21	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 05:21	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 05:21	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 05:21	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 05:21	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 05:21	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 05:21	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW6U-GW-121219 **Lab ID: 10502418001** Collected: 12/12/19 10:15 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 05:21	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 05:21	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 05:21	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 05:21	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 05:21	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 05:21	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 05:21	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 05:21	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 05:21	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 05:21	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 05:21	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 05:21	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 05:21	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 05:21	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	122	%	75-136		1		12/18/19 05:21	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		12/18/19 05:21	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1		12/18/19 05:21	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	212	mg/L	5.0	2.0	1		12/18/19 12:40		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	312	mg/L	10.0	5.0	1		12/19/19 12:00		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:12	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	23.0	mg/L	1.2	0.12	1		12/13/19 13:08	16887-00-6	
Nitrate as N	2.1	mg/L	0.10	0.012	1		12/13/19 13:08	14797-55-8	
Sulfate	8.8	mg/L	1.2	0.28	1		12/13/19 13:08	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	1.8	mg/L	0.10	0.018	1		12/19/19 13:13		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:20		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	2.4	mg/L	1.0	0.39	1		12/18/19 20:24	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW6D-GW-121219 **Lab ID: 10502418002** Collected: 12/12/19 11:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:07	12/19/19 14:07	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:07	12/19/19 14:07	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:07	12/19/19 14:07	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:28	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:28	7440-38-2	
Barium, Dissolved	9.1J	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:28	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:28	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:28	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:28	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:28	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:28	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:28	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:28	7439-98-7	
Nickel, Dissolved	1.2J	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:28	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:28	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:28	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:28	7440-28-0	
Vanadium, Dissolved	5.8J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:28	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:28	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:36	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/22/19 00:05	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:05	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:05	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/22/19 00:05	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:05	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:05	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:05	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:05	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/22/19 00:05	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/22/19 00:05	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:05	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:05	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/22/19 00:05	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/22/19 00:05	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:05	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:05	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/22/19 00:05	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/22/19 00:05	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/22/19 00:05	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:05	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: **MW6D-GW-121219** Lab ID: **10502418002** Collected: 12/12/19 11:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/22/19 00:05	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:05	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/22/19 00:05	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/22/19 00:05	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/22/19 00:05	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/22/19 00:05	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:05	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/22/19 00:05	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/22/19 00:05	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/22/19 00:05	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/22/19 00:05	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/22/19 00:05	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/22/19 00:05	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:05	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/22/19 00:05	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/22/19 00:05	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/22/19 00:05	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/22/19 00:05	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/22/19 00:05	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/22/19 00:05	75-15-0	
Carbon tetrachloride	0.48J	ug/L	0.50	0.19	1		12/22/19 00:05	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:05	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/22/19 00:05	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/22/19 00:05	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/22/19 00:05	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/22/19 00:05	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/22/19 00:05	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/22/19 00:05	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:05	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/22/19 00:05	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/22/19 00:05	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:05	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:05	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/22/19 00:05	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/22/19 00:05	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/22/19 00:05	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/22/19 00:05	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/22/19 00:05	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:05	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/22/19 00:05	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/22/19 00:05	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/22/19 00:05	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/22/19 00:05	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/22/19 00:05	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/22/19 00:05	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/22/19 00:05	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW6D-GW-121219 **Lab ID:** 10502418002 Collected: 12/12/19 11:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:05	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:05	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:05	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/22/19 00:05	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:05	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:05	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:05	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:05	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/22/19 00:05	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/22/19 00:05	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:05	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/22/19 00:05	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/22/19 00:05	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/22/19 00:05	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	75-136		1		12/22/19 00:05	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/22/19 00:05	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/22/19 00:05	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	172	mg/L	5.0	2.0	1		12/18/19 13:09		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	223	mg/L	10.0	5.0	1		12/19/19 12:00		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:13	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.6	mg/L	1.2	0.12	1		12/13/19 13:28	16887-00-6	M1
Nitrate as N	0.063J	mg/L	0.10	0.012	1		12/13/19 13:28	14797-55-8	M1
Sulfate	6.6	mg/L	1.2	0.28	1		12/13/19 13:28	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.034J	mg/L	0.10	0.018	1		12/19/19 13:15		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:20		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/18/19 20:37	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW18D-GW-121219 **Lab ID:** 10502418003 Collected: 12/12/19 12:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:10	12/19/19 14:10	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:10	12/19/19 14:10	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:10	12/19/19 14:10	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:30	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:30	7440-38-2	
Barium, Dissolved	51.6	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:30	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:30	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:30	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:30	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:30	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:30	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:30	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:30	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:30	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:30	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:30	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:30	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:30	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:30	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:48	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/22/19 00:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/22/19 00:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/22/19 00:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/22/19 00:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/22/19 00:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/22/19 00:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/22/19 00:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/22/19 00:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/22/19 00:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:22	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW18D-GW-121219 **Lab ID: 10502418003** Collected: 12/12/19 12:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/22/19 00:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/22/19 00:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/22/19 00:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/22/19 00:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/22/19 00:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/22/19 00:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/22/19 00:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/22/19 00:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/22/19 00:22	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/22/19 00:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/22/19 00:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/22/19 00:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/22/19 00:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/22/19 00:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/22/19 00:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/22/19 00:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/22/19 00:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/22/19 00:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/22/19 00:22	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/22/19 00:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/22/19 00:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/22/19 00:22	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/22/19 00:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/22/19 00:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/22/19 00:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/22/19 00:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/22/19 00:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/22/19 00:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/22/19 00:22	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/22/19 00:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/22/19 00:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/22/19 00:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/22/19 00:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/22/19 00:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/22/19 00:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/22/19 00:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/22/19 00:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/22/19 00:22	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW18D-GW-121219 **Lab ID:** 10502418003 Collected: 12/12/19 12:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/22/19 00:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/22/19 00:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/22/19 00:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/22/19 00:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/22/19 00:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/22/19 00:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	75-136		1		12/22/19 00:22	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/22/19 00:22	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/22/19 00:22	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	155	mg/L	5.0	2.0	1		12/18/19 13:14		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	188	mg/L	10.0	5.0	1		12/19/19 12:00		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:30	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.7	mg/L	1.2	0.12	1		12/13/19 13:47	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/13/19 13:47	14797-55-8	
Sulfate	8.2	mg/L	1.2	0.28	1		12/13/19 13:47	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/19/19 13:16		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:20		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.41J	mg/L	1.0	0.39	1		12/18/19 22:21	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW16D-GW-121219 **Lab ID:** 10502418004 Collected: 12/12/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:12	12/19/19 14:12	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:12	12/19/19 14:12	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:12	12/19/19 14:12	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:45	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:45	7440-38-2	
Barium, Dissolved	64.4	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:45	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:45	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:45	7440-43-9	
Chromium, Dissolved	0.93J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:45	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:45	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:45	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:45	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:45	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:45	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:45	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:45	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:45	7440-28-0	
Vanadium, Dissolved	9.6J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:45	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:45	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:50	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/22/19 00:40	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:40	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:40	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/22/19 00:40	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:40	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:40	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:40	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:40	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/22/19 00:40	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/22/19 00:40	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:40	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:40	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/22/19 00:40	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/22/19 00:40	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:40	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:40	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/22/19 00:40	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/22/19 00:40	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/22/19 00:40	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:40	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW16D-GW-121219 **Lab ID: 10502418004** Collected: 12/12/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/22/19 00:40	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:40	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/22/19 00:40	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/22/19 00:40	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/22/19 00:40	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/22/19 00:40	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:40	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/22/19 00:40	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/22/19 00:40	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/22/19 00:40	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/22/19 00:40	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/22/19 00:40	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/22/19 00:40	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:40	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/22/19 00:40	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/22/19 00:40	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/22/19 00:40	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/22/19 00:40	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/22/19 00:40	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/22/19 00:40	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/22/19 00:40	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:40	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/22/19 00:40	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/22/19 00:40	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/22/19 00:40	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/22/19 00:40	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/22/19 00:40	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/22/19 00:40	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:40	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/22/19 00:40	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/22/19 00:40	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:40	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:40	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/22/19 00:40	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/22/19 00:40	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/22/19 00:40	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/22/19 00:40	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/22/19 00:40	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:40	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/22/19 00:40	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/22/19 00:40	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/22/19 00:40	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/22/19 00:40	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/22/19 00:40	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/22/19 00:40	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/22/19 00:40	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Sample: MW16D-GW-121219 **Lab ID: 10502418004** Collected: 12/12/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:40	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:40	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:40	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/22/19 00:40	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:40	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:40	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:40	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:40	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/22/19 00:40	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/22/19 00:40	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:40	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/22/19 00:40	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/22/19 00:40	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/22/19 00:40	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	75-136		1		12/22/19 00:40	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/22/19 00:40	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/22/19 00:40	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	159	mg/L	5.0	2.0	1		12/18/19 13:20		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	366	mg/L	10.0	5.0	1		12/19/19 12:00		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:30	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	10.4	mg/L	1.2	0.12	1		12/13/19 21:07	16887-00-6	
Nitrate as N	10	mg/L	0.50	0.062	5		12/22/19 14:43	14797-55-8	
Sulfate	31.9	mg/L	1.2	0.28	1		12/13/19 21:07	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	7.7	mg/L	1.0	0.18	10		12/19/19 17:02		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:21		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.96J	mg/L	1.0	0.39	1		12/18/19 22:34	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: MW17D-GW-121219 **Lab ID: 10502418005** Collected: 12/12/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:14	12/19/19 14:14	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:14	12/19/19 14:14	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:14	12/19/19 14:14	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:48	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:48	7440-38-2	
Barium, Dissolved	52.7	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:48	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:48	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:48	7440-43-9	
Chromium, Dissolved	1.1J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:48	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:48	7440-48-4	
Copper, Dissolved	1.5J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:48	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:48	7439-92-1	
Molybdenum, Dissolved	8.9J	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:48	7439-98-7	
Nickel, Dissolved	1.7J	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:48	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:48	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:48	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:48	7440-28-0	
Vanadium, Dissolved	4.1J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:48	7440-62-2	
Zinc, Dissolved	32.1	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:48	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:53	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/22/19 00:57	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:57	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:57	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/22/19 00:57	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:57	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 00:57	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:57	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:57	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/22/19 00:57	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/22/19 00:57	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:57	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:57	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/22/19 00:57	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/22/19 00:57	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:57	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 00:57	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/22/19 00:57	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/22/19 00:57	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/22/19 00:57	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:57	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: **MW17D-GW-121219** Lab ID: **10502418005** Collected: 12/12/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/22/19 00:57	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:57	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/22/19 00:57	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/22/19 00:57	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/22/19 00:57	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/22/19 00:57	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:57	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/22/19 00:57	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/22/19 00:57	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/22/19 00:57	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/22/19 00:57	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/22/19 00:57	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/22/19 00:57	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:57	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/22/19 00:57	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/22/19 00:57	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/22/19 00:57	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/22/19 00:57	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/22/19 00:57	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/22/19 00:57	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/22/19 00:57	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:57	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/22/19 00:57	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/22/19 00:57	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/22/19 00:57	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/22/19 00:57	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/22/19 00:57	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/22/19 00:57	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/22/19 00:57	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/22/19 00:57	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/22/19 00:57	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 00:57	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:57	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/22/19 00:57	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/22/19 00:57	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/22/19 00:57	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/22/19 00:57	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/22/19 00:57	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/22/19 00:57	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/22/19 00:57	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/22/19 00:57	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/22/19 00:57	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/22/19 00:57	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/22/19 00:57	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/22/19 00:57	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/22/19 00:57	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Sample: MW17D-GW-121219 **Lab ID: 10502418005** Collected: 12/12/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:57	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 00:57	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/22/19 00:57	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/22/19 00:57	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/22/19 00:57	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/22/19 00:57	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:57	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:57	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/22/19 00:57	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/22/19 00:57	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 00:57	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/22/19 00:57	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/22/19 00:57	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/22/19 00:57	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	75-136		1		12/22/19 00:57	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/22/19 00:57	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/22/19 00:57	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	158	mg/L	5.0	2.0	1		12/20/19 13:02		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	296	mg/L	10.0	5.0	1		12/19/19 12:00		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:31	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	28.5	mg/L	1.2	0.12	1		12/13/19 21:26	16887-00-6	
Nitrate as N	0.092J	mg/L	0.10	0.012	1		12/13/19 21:26	14797-55-8	
Sulfate	53.3	mg/L	1.2	0.28	1		12/13/19 21:26	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/19/19 13:19		FS,M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:21		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	3.2	mg/L	1.0	0.39	1		12/18/19 22:47	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: TB1-121219 Lab ID: 10502418006 Collected: 12/12/19 07:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/21/19 20:36	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/21/19 20:36	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/21/19 20:36	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/21/19 20:36	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/21/19 20:36	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/21/19 20:36	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:36	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:36	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/21/19 20:36	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/21/19 20:36	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:36	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:36	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/21/19 20:36	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/21/19 20:36	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/21/19 20:36	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/21/19 20:36	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/21/19 20:36	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/21/19 20:36	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/21/19 20:36	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:36	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/21/19 20:36	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:36	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/21/19 20:36	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/21/19 20:36	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/21/19 20:36	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/21/19 20:36	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:36	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/21/19 20:36	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/21/19 20:36	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/21/19 20:36	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/21/19 20:36	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/21/19 20:36	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/21/19 20:36	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/21/19 20:36	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/21/19 20:36	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/21/19 20:36	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/21/19 20:36	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/21/19 20:36	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/21/19 20:36	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/21/19 20:36	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/21/19 20:36	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:36	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/21/19 20:36	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/21/19 20:36	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/21/19 20:36	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/21/19 20:36	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Sample: TB1-121219 **Lab ID: 10502418006** Collected: 12/12/19 07:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/21/19 20:36	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/21/19 20:36	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/21/19 20:36	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/21/19 20:36	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/21/19 20:36	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/21/19 20:36	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/21/19 20:36	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/21/19 20:36	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/21/19 20:36	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/21/19 20:36	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/21/19 20:36	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/21/19 20:36	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/21/19 20:36	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/21/19 20:36	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/21/19 20:36	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/21/19 20:36	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/21/19 20:36	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/21/19 20:36	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/21/19 20:36	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/21/19 20:36	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:36	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/21/19 20:36	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/21/19 20:36	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/21/19 20:36	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/21/19 20:36	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/21/19 20:36	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:36	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:36	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/21/19 20:36	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/21/19 20:36	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/21/19 20:36	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/21/19 20:36	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/21/19 20:36	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/21/19 20:36	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	75-136		1		12/21/19 20:36	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1		12/21/19 20:36	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/21/19 20:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 1399248

Analysis Method: RSK-175

QC Batch Method: RSK175

Analysis Description: VOA (GC) RSK175

Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: R3484179-1

Matrix: Water

Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/19/19 13:07	
Ethane	ug/L	<4.07	13.0	4.07	12/19/19 13:07	
Ethene	ug/L	<4.26	13.0	4.26	12/19/19 13:07	

LABORATORY CONTROL SAMPLE & LCSD: R3484179-4

R3484179-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	66.6	68.4	98.2	101	85.0-115	2.67	20	
Ethane	ug/L	129	121	125	93.8	96.9	85.0-115	3.25	20	
Ethene	ug/L	127	116	120	91.3	94.5	85.0-115	3.39	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 650105 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3496420 Matrix: Water
 Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/20/19 13:24	

LABORATORY CONTROL SAMPLE: 3496421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3496422 3496423

Parameter	Units	10502418002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.2	5.1	104	102	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 651190 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3501700 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/22/19 10:35	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/22/19 10:35	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/22/19 10:35	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/22/19 10:35	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/22/19 10:35	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/22/19 10:35	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/22/19 10:35	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/22/19 10:35	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/22/19 10:35	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/22/19 10:35	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/22/19 10:35	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/22/19 10:35	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/22/19 10:35	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/22/19 10:35	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/22/19 10:35	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/22/19 10:35	

LABORATORY CONTROL SAMPLE: 3501701

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1100	110	80-120	
Arsenic, Dissolved	ug/L	1000	1090	109	80-120	
Barium, Dissolved	ug/L	1000	1070	107	80-120	
Beryllium, Dissolved	ug/L	1000	1050	105	80-120	
Cadmium, Dissolved	ug/L	1000	1100	110	80-120	
Chromium, Dissolved	ug/L	1000	1060	106	80-120	
Cobalt, Dissolved	ug/L	1000	1070	107	80-120	
Copper, Dissolved	ug/L	1000	1050	105	80-120	
Lead, Dissolved	ug/L	1000	1090	109	80-120	
Molybdenum, Dissolved	ug/L	1000	1070	107	80-120	
Nickel, Dissolved	ug/L	1000	1080	108	80-120	
Selenium, Dissolved	ug/L	1000	1090	109	80-120	
Silver, Dissolved	ug/L	500	531	106	80-120	
Thallium, Dissolved	ug/L	1000	1100	110	80-120	
Vanadium, Dissolved	ug/L	1000	1050	105	80-120	
Zinc, Dissolved	ug/L	1000	1100	110	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501702		3501703		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10502418003 Result	MS Spike Conc.	MSD Spike Conc.									
Antimony, Dissolved	ug/L	<7.0	1000	1000	1070	906	107	91	75-125	17	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1070	900	107	90	75-125	17	20		
Barium, Dissolved	ug/L	51.6	1000	1000	1090	927	104	88	75-125	16	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1010	854	101	85	75-125	17	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1070	898	107	90	75-125	17	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	1030	879	103	88	75-125	16	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	1030	871	103	87	75-125	17	20		
Copper, Dissolved	ug/L	<1.2	1000	1000	1020	859	102	86	75-125	17	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1050	883	105	88	75-125	17	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1040	883	104	88	75-125	17	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1040	876	104	88	75-125	17	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	887	105	89	75-125	17	20		
Silver, Dissolved	ug/L	<0.40	500	500	517	432	103	86	75-125	18	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	1040	888	104	89	75-125	16	20		
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1030	870	103	87	75-125	17	20		
Zinc, Dissolved	ug/L	<6.3	1000	1000	1060	893	105	89	75-125	17	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 650497 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10502418001

METHOD BLANK: 3497801 Matrix: Water

Associated Lab Samples: 10502418001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	12/17/19 22:58	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/17/19 22:58	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/17/19 22:58	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/17/19 22:58	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/17/19 22:58	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/17/19 22:58	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/17/19 22:58	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/17/19 22:58	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/17/19 22:58	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/17/19 22:58	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/17/19 22:58	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/17/19 22:58	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/17/19 22:58	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/17/19 22:58	
Acetone	ug/L	<9.2	20.0	9.2	12/17/19 22:58	
Acrolein	ug/L	<3.2	100	3.2	12/17/19 22:58	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/17/19 22:58	
Benzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/17/19 22:58	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
Bromoform	ug/L	<0.80	4.0	0.80	12/17/19 22:58	
Bromomethane	ug/L	<1.8	4.0	1.8	12/17/19 22:58	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/17/19 22:58	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/17/19 22:58	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

METHOD BLANK: 3497801

Matrix: Water

Associated Lab Samples: 10502418001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Chloroethane	ug/L	<0.49	1.0	0.49	12/17/19 22:58	
Chloroform	ug/L	<0.45	4.0	0.45	12/17/19 22:58	
Chloromethane	ug/L	<0.48	4.0	0.48	12/17/19 22:58	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	12/17/19 22:58	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/17/19 22:58	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/17/19 22:58	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/17/19 22:58	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Naphthalene	ug/L	<0.48	1.0	0.48	12/17/19 22:58	
o-Xylene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Styrene	ug/L	<0.19	0.50	0.19	12/17/19 22:58	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/17/19 22:58	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/17/19 22:58	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Tetrahydrofuran	ug/L	<2.2	40.0	2.2	12/17/19 22:58	
Toluene	ug/L	<0.083	0.50	0.083	12/17/19 22:58	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/17/19 22:58	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/17/19 22:58	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/17/19 22:58	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/17/19 22:58	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/17/19 22:58	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/17/19 22:58	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/17/19 22:58	
1,2-Dichloroethane-d4 (S)	%	117	75-136		12/17/19 22:58	
4-Bromofluorobenzene (S)	%	111	75-125		12/17/19 22:58	
Toluene-d8 (S)	%	102	75-125		12/17/19 22:58	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	100	68-141	
1,1,1-Trichloroethane	ug/L	20	21.2	106	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	26.5	133	69-132	L3
1,1-Dichloroethane	ug/L	20	23.7	118	73-125	
1,1-Dichloroethene	ug/L	20	22.0	110	71-126	
1,1-Dichloropropene	ug/L	20	21.3	106	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.0	90	72-126	
1,2,3-Trichloropropane	ug/L	20	20.6	103	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.0	85	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.1	101	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.3	91	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	101	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	41.0	102	74-125	N2
1,2-Dichloropropane	ug/L	20	21.7	109	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-127	
1,3-Dichlorobenzene	ug/L	20	20.7	104	75-126	
1,3-Dichloropropane	ug/L	20	21.0	105	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	422	106	72-129	
2,2,4-Trimethylpentane	ug/L	20	20.5	103	72-128	
2,2-Dichloropropane	ug/L	20	23.8	119	65-138	
2-Butanone (MEK)	ug/L	100	104	104	59-144	
2-Chlorotoluene	ug/L	20	20.9	105	75-127	
2-Hexanone	ug/L	100	99.0	99	73-134	
4-Chlorotoluene	ug/L	20	20.2	101	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.9	98	62-141	
Acetone	ug/L	100	110	110	60-137	
Acrolein	ug/L	200	306	153	60-141	CH,L3,SS
Acrylonitrile	ug/L	200	216	108	75-129	
Benzene	ug/L	20	21.0	105	73-125	
Bromobenzene	ug/L	20	20.4	102	73-125	
Bromochloromethane	ug/L	20	17.2	86	75-135	
Bromodichloromethane	ug/L	20	21.4	107	75-125	
Bromoform	ug/L	20	21.2	106	67-136	
Bromomethane	ug/L	20	21.8	109	30-150	SS
Carbon disulfide	ug/L	20	18.6	93	47-137	
Carbon tetrachloride	ug/L	20	20.5	102	75-125	
Chlorobenzene	ug/L	20	20.1	101	75-125	
Chloroethane	ug/L	20	22.3	111	63-136	
Chloroform	ug/L	20	18.9	95	73-128	
Chloromethane	ug/L	20	18.1	90	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.2	106	75-125	
Dibromomethane	ug/L	20	17.7	88	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	27.7	139	68-127	L3
Diisopropyl ether	ug/L	20	23.0	115	71-131	
Ethyl-tert-butyl ether	ug/L	20	21.2	106	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.5	87	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.1	96	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-126	
Methyl-tert-butyl ether	ug/L	20	23.4	117	75-125	
Methylene Chloride	ug/L	20	24.0	120	70-125	
n-Butylbenzene	ug/L	20	21.5	107	75-126	
n-Propylbenzene	ug/L	20	20.5	103	73-127	
Naphthalene	ug/L	20	19.1	96	63-128	
o-Xylene	ug/L	20	18.8	94	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	18.7	93	75-125	
tert-Amylmethyl ether	ug/L	20	20.9	104	75-125	
tert-Butyl Alcohol	ug/L	200	244	122	75-130	
tert-Butylbenzene	ug/L	20	20.1	101	75-131	
Tetrachloroethene	ug/L	20	18.8	94	74-125	
Tetrahydrofuran	ug/L	200	146	73	64-138	
Toluene	ug/L	20	19.4	97	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	68-128	
trans-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5	99	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	23.9	120	72-133	
Vinyl acetate	ug/L	20	20.8	104	61-129	
Vinyl chloride	ug/L	20	23.0	115	75-128	
Xylene (Total)	ug/L	60	57.4	96	75-125	
1,2-Dichloroethane-d4 (S)	%			111	75-136	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804

Parameter	Units	10502151001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.1	19.4	100	97	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.2	25.6	111	128	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	22.6	23.5	113	118	66-134	4	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.9	20.3	100	102	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3497803		3497804									
Parameter	Units	10502151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	29.0	28.1	145	141	65-146	3	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.7	24.4	123	122	68-132	1	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	23.8	23.3	119	116	66-139	2	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	21.6	24.5	108	122	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	17.8	18.5	89	92	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20.7	21.6	104	108	69-128	4	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	16.9	17.9	84	90	65-140	6	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.9	20.1	100	101	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.4	48.4	95	97	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	18.9	19.5	94	98	68-125	4	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.7	20.3	98	101	74-136	3	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	19.7	19.5	99	98	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	44.1	44.3	110	111	71-126	0	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.1	21.3	106	106	67-125	1	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.8	20.3	99	102	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.7	20.4	99	102	75-131	3	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	20.2	20.6	101	103	71-125	2	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.4	19.6	97	98	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	353	390	88	98	68-125	10	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.5	20.3	103	102	54-129	1	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	28.2	29.1	141	145	69-139	3	30	M1	
2-Butanone (MEK)	ug/L	<0.99	100	100	99.7	107	100	107	54-144	7	30		
2-Chlorotoluene	ug/L	<0.16	20	20	20.6	21.0	103	105	75-134	2	30		
2-Hexanone	ug/L	<0.88	100	100	99.3	101	99	101	58-137	2	30		
4-Chlorotoluene	ug/L	<0.13	20	20	19.6	20.2	98	101	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	102	104	102	104	60-129	2	30		
Acetone	ug/L	<9.2	100	100	91.8	88.7	92	89	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	389	379	195	190	30-150	3	30	CH, M0,SS	
Acrylonitrile	ug/L	<0.91	200	200	229	235	115	118	68-125	3	30		
Benzene	ug/L	<0.10	20	20	20.3	20.5	102	102	68-125	1	30		
Bromobenzene	ug/L	<0.21	20	20	19.3	20.2	96	101	73-126	5	30		
Bromochloromethane	ug/L	<0.27	20	20	19.5	19.8	98	99	66-143	1	30		
Bromodichloromethane	ug/L	<0.22	20	20	21.0	21.3	105	106	74-125	1	30		
Bromoform	ug/L	<0.80	20	20	20.9	21.6	104	108	64-134	3	30		
Bromomethane	ug/L	<1.8	20	20	28.0	27.8	140	139	30-150	1	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	18.6	18.2	93	91	43-147	3	30		
Carbon tetrachloride	ug/L	<0.19	20	20	24.6	25.8	123	129	71-143	5	30		
Chlorobenzene	ug/L	<0.17	20	20	19.3	19.6	97	98	75-125	1	30		
Chloroethane	ug/L	<0.49	20	20	33.6	28.4	168	142	75-129	17	30	M1	
Chloroform	ug/L	<0.45	20	20	21.8	22.0	109	110	66-132	1	30		
Chloromethane	ug/L	<0.48	20	20	27.7	25.8	139	129	53-137	7	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	20.9	22.1	105	110	67-133	5	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	18.8	95	94	66-125	1	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804													
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10502151001 Result	Spike Conc.	Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.4	21.1	102	105	62-132	3	30		
Dibromomethane	ug/L	<0.16	20	20	16.5	16.7	83	83	67-125	1	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.5	25.5	132	127	71-142	4	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	31.0	29.7	155	149	70-131	4	30	M0	
Diisopropyl ether	ug/L	<0.13	20	20	24.0	23.9	120	119	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	24.0	107	120	66-128	11	30		
Ethylbenzene	ug/L	<0.14	20	20	19.5	19.6	98	98	74-126	0	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	17.5	17.9	87	90	68-143	3	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	19.1	19.3	95	96	74-130	1	30		
m&p-Xylene	ug/L	<0.31	40	40	37.6	38.0	94	95	69-132	1	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	24.8	23.2	124	116	65-131	6	30		
Methylene Chloride	ug/L	<0.98	20	20	23.5	23.4	116	115	57-125	1	30		
n-Butylbenzene	ug/L	<0.24	20	20	21.3	21.8	107	109	71-131	2	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.4	21.3	102	106	67-138	4	30		
Naphthalene	ug/L	<0.48	20	20	19.7	19.7	99	99	60-130	0	30		
o-Xylene	ug/L	<0.16	20	20	18.4	18.5	92	93	69-131	1	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	20.3	21.2	102	106	72-133	4	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.3	21.7	106	108	73-134	2	30		
Styrene	ug/L	<0.19	20	20	18.1	18.3	91	91	72-125	1	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	20.2	20.6	101	103	67-125	2	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	212	229	106	115	64-137	8	30		
tert-Butylbenzene	ug/L	<0.15	20	20	20.5	21.0	102	105	70-143	3	30		
Tetrachloroethene	ug/L	<0.17	20	20	18.4	19.0	92	95	72-129	3	30		
Tetrahydrofuran	ug/L	<2.2	200	200	141	174	70	87	66-128	21	30		
Toluene	ug/L	<0.083	20	20	18.8	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	23.1	22.2	116	111	62-137	4	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	20.7	21.0	104	105	61-136	1	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	49.8	52.0	100	104	45-128	4	30		
Trichloroethene	ug/L	<0.15	20	20	19.2	19.4	96	97	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	31.0	32.0	155	160	75-139	3	30	M1	
Vinyl acetate	ug/L	<1.1	20	20	19.8	22.4	99	112	51-135	12	30		
Vinyl chloride	ug/L	<0.092	20	20	32.3	31.9	161	159	68-146	1	30	M1	
Xylene (Total)	ug/L	<0.31	60	60	56.0	56.5	93	94	67-137	1	30		
1,2-Dichloroethane-d4 (S)	%						113	111	75-136				
4-Bromofluorobenzene (S)	%						101	106	75-125				
Toluene-d8 (S)	%						98	100	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 651341 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502418002, 10502418003, 10502418004, 10502418005, 10502418006

METHOD BLANK: 3502945 Matrix: Water
Associated Lab Samples: 10502418002, 10502418003, 10502418004, 10502418005, 10502418006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	12/21/19 20:18	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,3-Trichlorobenzene	ug/L	<0.21	4.0	0.21	12/21/19 20:18	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/21/19 20:18	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/21/19 20:18	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/21/19 20:18	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/21/19 20:18	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/21/19 20:18	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/21/19 20:18	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/21/19 20:18	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/21/19 20:18	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/21/19 20:18	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/21/19 20:18	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/21/19 20:18	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/21/19 20:18	
Acetone	ug/L	<9.2	20.0	9.2	12/21/19 20:18	
Acrolein	ug/L	<3.2	10.0	3.2	12/21/19 20:18	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/21/19 20:18	
Benzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/21/19 20:18	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/21/19 20:18	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/21/19 20:18	
Bromoform	ug/L	<0.80	4.0	0.80	12/21/19 20:18	
Bromomethane	ug/L	<1.8	4.0	1.8	12/21/19 20:18	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/21/19 20:18	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/21/19 20:18	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

METHOD BLANK: 3502945

Matrix: Water

Associated Lab Samples: 10502418002, 10502418003, 10502418004, 10502418005, 10502418006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Chloroethane	ug/L	<0.49	1.0	0.49	12/21/19 20:18	
Chloroform	ug/L	<0.45	4.0	0.45	12/21/19 20:18	
Chloromethane	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/21/19 20:18	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/21/19 20:18	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/21/19 20:18	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/21/19 20:18	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Naphthalene	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
o-Xylene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Styrene	ug/L	<0.19	0.50	0.19	12/21/19 20:18	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/21/19 20:18	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/21/19 20:18	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/21/19 20:18	
Toluene	ug/L	<0.083	0.50	0.083	12/21/19 20:18	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/21/19 20:18	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/21/19 20:18	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/21/19 20:18	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/21/19 20:18	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/21/19 20:18	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/21/19 20:18	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/21/19 20:18	
1,2-Dichloroethane-d4 (S)	%	107	75-136		12/21/19 20:18	
4-Bromofluorobenzene (S)	%	104	75-125		12/21/19 20:18	
Toluene-d8 (S)	%	101	75-125		12/21/19 20:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.7	88	68-141	
1,1,1-Trichloroethane	ug/L	20	18.4	92	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	73-125	
1,1,2-Trichloroethane	ug/L	20	17.6	88	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.7	93	69-132	
1,1-Dichloroethane	ug/L	20	17.9	89	73-125	
1,1-Dichloroethene	ug/L	20	17.6	88	71-126	
1,1-Dichloropropene	ug/L	20	19.1	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	16.0	80	72-126	
1,2,3-Trichloropropane	ug/L	20	18.6	93	75-126	
1,2,4-Trichlorobenzene	ug/L	20	18.0	90	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.4	97	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	41.4	83	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	18.4	92	75-129	
1,2-Dichlorobenzene	ug/L	20	18.1	91	75-129	
1,2-Dichloroethane	ug/L	20	18.2	91	75-125	
1,2-Dichloroethene (Total)	ug/L	40	34.8	87	74-125	N2
1,2-Dichloropropane	ug/L	20	17.0	85	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.6	98	75-127	
1,3-Dichlorobenzene	ug/L	20	18.1	90	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	18.4	92	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	362	90	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.5	97	72-128	
2,2-Dichloropropane	ug/L	20	18.1	90	65-138	
2-Butanone (MEK)	ug/L	100	84.0	84	59-144	
2-Chlorotoluene	ug/L	20	19.0	95	75-127	
2-Hexanone	ug/L	100	90.1	90	73-134	
4-Chlorotoluene	ug/L	20	18.4	92	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	89.6	90	62-141	
Acetone	ug/L	100	85.5	86	60-137	
Acrolein	ug/L	200	192	96	60-141	
Acrylonitrile	ug/L	200	178	89	75-129	
Benzene	ug/L	20	17.7	88	73-125	
Bromobenzene	ug/L	20	18.0	90	73-125	
Bromochloromethane	ug/L	20	16.8	84	75-135	
Bromodichloromethane	ug/L	20	17.2	86	75-125	
Bromoform	ug/L	20	16.4	82	67-136	
Bromomethane	ug/L	20	14.2	71	30-150	
Carbon disulfide	ug/L	20	16.9	85	47-137	
Carbon tetrachloride	ug/L	20	17.7	89	75-125	
Chlorobenzene	ug/L	20	18.6	93	75-125	
Chloroethane	ug/L	20	23.0	115	63-136	
Chloroform	ug/L	20	18.8	94	73-128	
Chloromethane	ug/L	20	16.8	84	55-130	
cis-1,2-Dichloroethene	ug/L	20	17.5	88	75-125	
cis-1,3-Dichloropropene	ug/L	20	17.3	86	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	17.8	89	75-125	
Dibromomethane	ug/L	20	16.8	84	75-125	
Dichlorodifluoromethane	ug/L	20	19.6	98	63-132	
Dichlorofluoromethane	ug/L	20	20.8	104	68-127	
Diisopropyl ether	ug/L	20	17.2	86	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	88	75-125	
Ethylbenzene	ug/L	20	18.6	93	75-125	
Hexachloro-1,3-butadiene	ug/L	20	20.3	101	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.5	97	75-125	
m&p-Xylene	ug/L	40	37.3	93	75-126	
Methyl-tert-butyl ether	ug/L	20	17.1	85	75-125	
Methylene Chloride	ug/L	20	17.7	88	70-125	
n-Butylbenzene	ug/L	20	19.6	98	75-126	
n-Propylbenzene	ug/L	20	19.5	97	73-127	
Naphthalene	ug/L	20	15.7	79	63-128	
o-Xylene	ug/L	20	18.5	92	75-128	
p-Isopropyltoluene	ug/L	20	18.0	90	75-125	
sec-Butylbenzene	ug/L	20	19.9	99	75-126	
Styrene	ug/L	20	18.1	90	75-125	
tert-Amylmethyl ether	ug/L	20	18.1	90	75-125	
tert-Butyl Alcohol	ug/L	200	182	91	75-130	
tert-Butylbenzene	ug/L	20	18.3	91	75-131	
Tetrachloroethene	ug/L	20	18.6	93	74-125	
Tetrahydrofuran	ug/L	200	172	86	64-138	
Toluene	ug/L	20	17.7	89	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.3	87	68-128	
trans-1,3-Dichloropropene	ug/L	20	17.7	89	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	38.4	77	60-127	
Trichloroethene	ug/L	20	16.4	82	75-127	
Trichlorofluoromethane	ug/L	20	19.9	99	72-133	
Vinyl acetate	ug/L	20	18.0	90	61-129	
Vinyl chloride	ug/L	20	16.9	85	75-128	
Xylene (Total)	ug/L	60	55.7	93	75-125	
1,2-Dichloroethane-d4 (S)	%			107	75-136	
4-Bromofluorobenzene (S)	%			104	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947 3502948

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503564007	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	18.1	18.3	90	92	75-140	1	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	19.9	19.8	99	99	74-136	0	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.7	19.9	98	99	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	17.3	17.6	86	88	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947		3502948									
Parameter	Units	10503564007	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20.6	20.8	103	104	65-146	1	30
1,1-Dichloroethane	ug/L	<0.17	20	20	18.2	18.4	91	92	68-132	1	30
1,1-Dichloroethene	ug/L	<0.16	20	20	18.7	18.2	93	91	66-139	2	30
1,1-Dichloropropene	ug/L	<0.20	20	20	20.3	19.9	101	100	67-134	2	30
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	20.0	22.4	100	112	67-129	12	30
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.2	19.4	96	97	69-128	1	30
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	20.1	22.9	100	114	65-140	13	30
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	20.2	20.7	101	104	71-133	3	30
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	44.2	44.9	88	90	54-138	1	30
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	17.9	18.0	90	90	68-125	0	30
1,2-Dichlorobenzene	ug/L	<0.14	20	20	18.8	19.2	94	96	74-136	2	30
1,2-Dichloroethane	ug/L	<0.22	20	20	18.2	18.1	91	91	68-125	0	30
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	34.2	34.4	85	86	71-126	1	30 N2
1,2-Dichloropropane	ug/L	<0.16	20	20	17.5	16.9	87	85	67-125	3	30
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20.3	21.3	101	106	68-137	5	30
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.1	19.3	95	96	75-131	1	30
1,3-Dichloropropane	ug/L	<0.070	20	20	18.7	18.6	93	93	71-125	1	30
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.3	19.3	97	96	74-126	0	30
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	349	342	87	86	68-125	2	30
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.4	20.7	102	104	54-129	2	30
2,2-Dichloropropane	ug/L	<0.17	20	20	19.1	19.1	95	96	69-139	0	30
2-Butanone (MEK)	ug/L	<0.99	100	100	79.3	77.8	79	78	54-144	2	30
2-Chlorotoluene	ug/L	<0.16	20	20	19.4	19.9	97	99	75-134	2	30
2-Hexanone	ug/L	<0.88	100	100	89.7	87.6	90	88	58-137	2	30
4-Chlorotoluene	ug/L	<0.13	20	20	19.3	19.4	96	97	72-133	1	30
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	90.1	89.0	90	89	60-129	1	30
Acetone	ug/L	<9.2	100	100	73.9	72.8	74	73	62-132	2	30
Acrolein	ug/L	<3.2	200	200	217	210	108	105	30-150	3	30
Acrylonitrile	ug/L	<0.91	200	200	178	176	89	88	68-125	1	30
Benzene	ug/L	<0.10	20	20	17.9	18.0	90	90	68-125	0	30
Bromobenzene	ug/L	<0.21	20	20	18.2	18.6	91	93	73-126	2	30
Bromochloromethane	ug/L	<0.27	20	20	16.9	16.7	85	83	66-143	1	30
Bromodichloromethane	ug/L	<0.22	20	20	17.8	17.6	89	88	74-125	1	30
Bromoform	ug/L	<0.80	20	20	16.8	16.4	84	82	64-134	2	30
Bromomethane	ug/L	<1.8	20	20	15.7	16.8	78	84	30-150	7	30
Carbon disulfide	ug/L	<0.19	20	20	16.6	15.6	83	78	43-147	6	30
Carbon tetrachloride	ug/L	<0.19	20	20	19.3	18.8	96	94	71-143	2	30
Chlorobenzene	ug/L	<0.17	20	20	19.0	18.9	95	94	75-125	1	30
Chloroethane	ug/L	<0.49	20	20	21.9	22.4	110	112	75-129	2	30
Chloroform	ug/L	<0.45	20	20	18.3	18.7	92	93	66-132	2	30
Chloromethane	ug/L	<0.48	20	20	16.2	15.8	81	79	53-137	2	30
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	17.4	17.8	87	89	67-133	2	30
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	18.0	18.1	90	90	66-125	0	30

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947		3502948		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10503564007 Result	MS Spike Conc.	MSD Spike Conc.									
Dibromochloromethane	ug/L	<0.12	20	20	17.9	18.0	90	90	62-132	1	30		
Dibromomethane	ug/L	<0.16	20	20	17.2	17.0	86	85	67-125	2	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	18.9	18.8	94	94	71-142	1	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	19.5	19.6	97	98	70-131	1	30		
Diisopropyl ether	ug/L	<0.13	20	20	17.0	17.2	85	86	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	17.4	17.9	87	89	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	19.0	18.9	95	94	74-126	0	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	24.9	26.2	124	131	68-143	5	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	20.8	21.3	104	107	74-130	2	30		
m&p-Xylene	ug/L	<0.31	40	40	38.1	38.9	95	97	69-132	2	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	16.8	17.0	84	85	65-131	1	30		
Methylene Chloride	ug/L	<0.98	20	20	17.2	17.6	86	88	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.0	23.4	110	117	71-131	7	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.9	21.6	105	108	67-138	3	30		
Naphthalene	ug/L	<0.48	20	20	19.1	20.6	95	103	60-130	8	30		
o-Xylene	ug/L	<0.16	20	20	18.7	19.1	93	95	69-131	2	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	19.3	20.8	96	104	72-133	7	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.7	23.1	108	116	73-134	7	30		
Styrene	ug/L	<0.19	20	20	18.6	18.6	93	93	72-125	0	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	17.9	18.1	89	90	67-125	1	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	177	175	89	87	64-137	1	30		
tert-Butylbenzene	ug/L	<0.15	20	20	19.5	20.7	98	104	70-143	6	30		
Tetrachloroethene	ug/L	<0.17	20	20	20.2	20.2	101	101	72-129	0	30		
Tetrahydrofuran	ug/L	<2.2	200	200	162	165	81	82	66-128	2	30		
Toluene	ug/L	<0.083	20	20	18.4	18.1	92	90	73-125	1	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	16.8	16.7	84	83	62-137	1	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	17.9	18.2	90	91	61-136	2	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	38.7	38.2	77	76	45-128	1	30		
Trichloroethene	ug/L	<0.15	20	20	17.3	17.2	87	86	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	19.8	19.3	99	96	75-139	3	30		
Vinyl acetate	ug/L	<1.1	20	20	17.0	17.0	85	85	51-135	0	30		
Vinyl chloride	ug/L	<0.092	20	20	16.3	16.1	82	80	68-146	2	30		
Xylene (Total)	ug/L	<0.31	60	60	56.8	58.0	95	97	67-137	2	30		
1,2-Dichloroethane-d4 (S)	%						107	107	75-136				
4-Bromofluorobenzene (S)	%						104	103	75-125				
Toluene-d8 (S)	%						104	104	75-125				

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 650666 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004

METHOD BLANK: 3498742 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2.2J	5.0	2.0	12/18/19 11:59	

LABORATORY CONTROL SAMPLE & LCSD: 3498743 3498744

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.4	42.5	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498745 3498746

Parameter	Units	10502946001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	36.5	40	40	78.0	77.4	104	102	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498747 3498748

Parameter	Units	10502946002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	41.5	40	40	77.2	78.1	89	92	80-120	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 650776 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502418005

METHOD BLANK: 3499485 Matrix: Water
Associated Lab Samples: 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	2.5J	5.0	2.0	12/20/19 12:59	

LABORATORY CONTROL SAMPLE & LCSD: 3499486 3499487

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.8	42.9	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500418 3500419

Parameter	Units	10502418005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	158	40	40	201	204	106	114	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500420 3500421

Parameter	Units	10502671003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	84.3	40	40	108	114	60	75	80-120	5	20	M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 650766 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3499404 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/19/19 12:00	

LABORATORY CONTROL SAMPLE: 3499405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	988	99	80-120	

SAMPLE DUPLICATE: 3499406

Parameter	Units	10502461001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	28100	27500	2	5	

SAMPLE DUPLICATE: 3499407

Parameter	Units	10502633004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	296	292	1	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 169011 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 766752 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/18/19 11:53	

LABORATORY CONTROL SAMPLE: 766753

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	95	90-110	

MATRIX SPIKE SAMPLE: 766755

Parameter	Units	20134334001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.020	0.2	0.062	27	75-125	M1

SAMPLE DUPLICATE: 766754

Parameter	Units	20134334001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.020	0.0083J		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 649885 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3494763 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/13/19 20:28	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/13/19 20:28	
Sulfate	mg/L	0.50J	1.2	0.28	12/13/19 20:28	

LABORATORY CONTROL SAMPLE: 3494764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.9	95	90-110	
Nitrate as N	mg/L	1	0.93	93	90-110	
Sulfate	mg/L	12.5	11.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494765 3494766

Parameter	Units	10502418001		10502418002		3494765		3494766		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	23.0	12.5	12.5	35.2	35.3	98	98	90-110	0	20		
Nitrate as N	mg/L	2.1	1	1	3.1	3.1	99	100	90-110	0	20		
Sulfate	mg/L	8.8	12.5	12.5	21.9	21.7	105	104	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494767 3494768

Parameter	Units	10502418002		10502418001		3494767		3494768		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	2.6	12.5	12.5	17.4	17.7	119	121	90-110	1	20	M1	
Nitrate as N	mg/L	0.063J	1	1	1.2	1.2	116	118	90-110	1	20	M1	
Sulfate	mg/L	6.6	12.5	12.5	19.7	20.1	105	108	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 649894 Analysis Method: EPA 353.2
 QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
 Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3494812 Matrix: Water
 Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 13:34	FS

LABORATORY CONTROL SAMPLE: 3494813

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.92	92	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494814 3494815

Parameter	Units	10502148007		10502148005		10502148007		10502148005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Nitrogen, NO2 plus NO3	mg/L	0.15	1	1	1	1.2	1.2	105	106	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499947 3499948

Parameter	Units	10502418005		10502418005		10502418005		10502418005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1	1.1	1.1	113	114	90-110	1	20	FS,M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 650833 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

METHOD BLANK: 3499827 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002, 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/20/19 10:19	

LABORATORY CONTROL SAMPLE: 3499828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	300	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499829 3499830

Parameter	Units	10502418001		10502418002		10502418003		10502418004		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	256	258	100	101	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499831 3499832

Parameter	Units	10502418002		10502418003		10502418004		10502418005		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	244	244	98	97	90-110	0	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

QC Batch: 181264 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10502418001, 10502418002

METHOD BLANK: 716684 Matrix: Water
Associated Lab Samples: 10502418001, 10502418002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/18/19 14:22	

LABORATORY CONTROL SAMPLE: 716685

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.4	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716686 716687

Parameter	Units	716686		716687		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		12139305001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	ND	25	25	26.9	26.9	106	106	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716688 716689

Parameter	Units	716688		716689		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		10502148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	0.58J	25	25	26.7	26.9	105	105	80-120	1	20

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

QC Batch: 181265 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10502418003, 10502418004, 10502418005

METHOD BLANK: 716690 Matrix: Water

Associated Lab Samples: 10502418003, 10502418004, 10502418005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/18/19 20:50	

LABORATORY CONTROL SAMPLE: 716691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716692 716693

Parameter	Units	716692		716693		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12139302003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	5.2	25	25	30.2	30.6	100	102	80-120	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716694 716695

Parameter	Units	716694		716695		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502648006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	1.1	25	25	27.3	27.2	105	104	80-120	1	20

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

FS The sample was filtered in the laboratory prior to analysis.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502418

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502418001	MW6U-GW-121219	RSK175	1399248	RSK-175	1399248
10502418002	MW6D-GW-121219	RSK175	1399248	RSK-175	1399248
10502418003	MW18D-GW-121219	RSK175	1399248	RSK-175	1399248
10502418004	MW16D-GW-121219	RSK175	1399248	RSK-175	1399248
10502418005	MW17D-GW-121219	RSK175	1399248	RSK-175	1399248
10502418001	MW6U-GW-121219	EPA 3010	651190	EPA 6010D	651349
10502418002	MW6D-GW-121219	EPA 3010	651190	EPA 6010D	651349
10502418003	MW18D-GW-121219	EPA 3010	651190	EPA 6010D	651349
10502418004	MW16D-GW-121219	EPA 3010	651190	EPA 6010D	651349
10502418005	MW17D-GW-121219	EPA 3010	651190	EPA 6010D	651349
10502418001	MW6U-GW-121219	EPA 7470A	650105	EPA 7470A	650460
10502418002	MW6D-GW-121219	EPA 7470A	650105	EPA 7470A	650460
10502418003	MW18D-GW-121219	EPA 7470A	650105	EPA 7470A	650460
10502418004	MW16D-GW-121219	EPA 7470A	650105	EPA 7470A	650460
10502418005	MW17D-GW-121219	EPA 7470A	650105	EPA 7470A	650460
10502418001	MW6U-GW-121219	EPA 8260B	650497		
10502418002	MW6D-GW-121219	EPA 8260B	651341		
10502418003	MW18D-GW-121219	EPA 8260B	651341		
10502418004	MW16D-GW-121219	EPA 8260B	651341		
10502418005	MW17D-GW-121219	EPA 8260B	651341		
10502418006	TB1-121219	EPA 8260B	651341		
10502418001	MW6U-GW-121219	SM 2320B	650666		
10502418002	MW6D-GW-121219	SM 2320B	650666		
10502418003	MW18D-GW-121219	SM 2320B	650666		
10502418004	MW16D-GW-121219	SM 2320B	650666		
10502418005	MW17D-GW-121219	SM 2320B	650776		
10502418001	MW6U-GW-121219	SM 2540C	650766		
10502418002	MW6D-GW-121219	SM 2540C	650766		
10502418003	MW18D-GW-121219	SM 2540C	650766		
10502418004	MW16D-GW-121219	SM 2540C	650766		
10502418005	MW17D-GW-121219	SM 2540C	650766		
10502418001	MW6U-GW-121219	SM 4500-S-2 D	169011		
10502418002	MW6D-GW-121219	SM 4500-S-2 D	169011		
10502418003	MW18D-GW-121219	SM 4500-S-2 D	169011		
10502418004	MW16D-GW-121219	SM 4500-S-2 D	169011		
10502418005	MW17D-GW-121219	SM 4500-S-2 D	169011		
10502418001	MW6U-GW-121219	EPA 300.0	649885		
10502418002	MW6D-GW-121219	EPA 300.0	649885		
10502418003	MW18D-GW-121219	EPA 300.0	649885		
10502418004	MW16D-GW-121219	EPA 300.0	649885		
10502418005	MW17D-GW-121219	EPA 300.0	649885		
10502418001	MW6U-GW-121219	EPA 353.2	649894		
10502418002	MW6D-GW-121219	EPA 353.2	649894		
10502418003	MW18D-GW-121219	EPA 353.2	649894		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502418

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502418004	MW16D-GW-121219	EPA 353.2	649894		
10502418005	MW17D-GW-121219	EPA 353.2	649894		
10502418001	MW6U-GW-121219	EPA 410.4	650833	EPA 410.4	650995
10502418002	MW6D-GW-121219	EPA 410.4	650833	EPA 410.4	650995
10502418003	MW18D-GW-121219	EPA 410.4	650833	EPA 410.4	650995
10502418004	MW16D-GW-121219	EPA 410.4	650833	EPA 410.4	650995
10502418005	MW17D-GW-121219	EPA 410.4	650833	EPA 410.4	650995
10502418001	MW6U-GW-121219	SM 5310C	181264		
10502418002	MW6D-GW-121219	SM 5310C	181264		
10502418003	MW18D-GW-121219	SM 5310C	181265		
10502418004	MW16D-GW-121219	SM 5310C	181265		
10502418005	MW17D-GW-121219	SM 5310C	181265		

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Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt

Client Name:
UPRR Jacobs

Project #: **WO#: 10502418**

PM: JMG Due Date: 12/30/19

CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7417594068429

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 1.6, 0.1 °C Average Corrected Temp (no temp blank only): See Exceptions 1 Container

Correction Factor: -0.1 Cooler Temp Corrected w/temp blank: 1.5, 0.0 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 12/17/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-5</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <u>1/1</u> <input type="checkbox"/> H ₂ SO ₄ <u>1/1</u> <input checked="" type="checkbox"/> Zinc Acetate <u>1/1</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
TS1 12/13/19 Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine <u>0-6 Roll 236619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>236659</u>
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review: Jina Stair

Date: 12/13/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: le [signature] Page 70 of 78



Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA 20134686

Cert. Needed: Yes No

Owner Received Date: 12/13/2019 Results Requested By: 12/30/2019

Workorder: 10502418

Workorder Name: 1497 Freeman WA-Cenex Harvest

Report To		Subcontract To					Requested Analysis																																																																																					
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333					<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">5636267 / 4500 Sulfide</div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="10">Preserved Containers</th> </tr> <tr> <th>Item</th> <th>Sample ID</th> <th>Sample Type</th> <th>Collect Date/Time</th> <th>Lab ID</th> <th>Matrix</th> <th>NEOH + Zn, Ac - BPZ</th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>1</td> <td>MW6U-GW-121219</td> <td>PS</td> <td>12/12/2019 10:15</td> <td>10502418001</td> <td>Water</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>MW6D-GW-121219</td> <td>PS</td> <td>12/12/2019 11:00</td> <td>10502418002</td> <td>Water</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>MW18D-GW-121219</td> <td>PS</td> <td>12/12/2019 12:00</td> <td>10502418003</td> <td>Water</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>MW16D-GW-121219</td> <td>PS</td> <td>12/12/2019 12:30</td> <td>10502418004</td> <td>Water</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>MW17D-GW-121219</td> <td>PS</td> <td>12/12/2019 13:30</td> <td>10502418005</td> <td>Water</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div>										Preserved Containers										Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NEOH + Zn, Ac - BPZ					1	MW6U-GW-121219	PS	12/12/2019 10:15	10502418001	Water	1					2	MW6D-GW-121219	PS	12/12/2019 11:00	10502418002	Water	1					3	MW18D-GW-121219	PS	12/12/2019 12:00	10502418003	Water	1					4	MW16D-GW-121219	PS	12/12/2019 12:30	10502418004	Water	1					5	MW17D-GW-121219	PS	12/12/2019 13:30	10502418005	Water	1				
Preserved Containers																																																																																												
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NEOH + Zn, Ac - BPZ																																																																																						
1	MW6U-GW-121219	PS	12/12/2019 10:15	10502418001	Water	1																																																																																						
2	MW6D-GW-121219	PS	12/12/2019 11:00	10502418002	Water	1																																																																																						
3	MW18D-GW-121219	PS	12/12/2019 12:00	10502418003	Water	1																																																																																						
4	MW16D-GW-121219	PS	12/12/2019 12:30	10502418004	Water	1																																																																																						
5	MW17D-GW-121219	PS	12/12/2019 13:30	10502418005	Water	1																																																																																						

Transfers						Comments									
Released By	Date/Time	Received By	Date/Time			SHORT HOLD!									
<i>[Signature]</i>	12/13/19 16:35	<i>[Signature]</i>													
<i>[Signature]</i>	12-14-19 8:45	<i>[Signature]</i>	12-14-19 8:45												
Cooler Temperature on Receipt 2-7°C		Custody Seal Y or N		Received on Ice Y or N		Samples Intact Y or N									

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upon Re

PM: CMM

Due Date: 12/30/19

CLIENT: PASI-MINN

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Proje

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12-19-19 AB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

WO#: 12139413



Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes

Owner Received Date: 12/13/2019 Results Requested By: 12/30/2019

Workorder: 10502418 Workorder Name: 1497 Freeman WA-Cenex Harvest

Report To		Subcontract To		Requested Analysis										
-----------	--	----------------	--	--------------------	--	--	--	--	--	--	--	--	--	--

Jennifer Gross
 Pace Analytical Seattle
 596 Industry Drive,
 Suite 602
 Tukwila, WA 98188
 Phone (206)957-2426

Pace Analytical Virginia MN
 315 Chestnut Street
 Virginia, MN 55792
 Phone (218)742-1042

5632354 / 5310 TOC

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				H2SO4 - DG98	LAB USE ONLY	
1	MW6U-GW-121219	PS	12/12/2019 10:15	10502418001	Water	2					X	
2	MW6D-GW-121219	PS	12/12/2019 11:00	10502418002	Water	2					X	
3	MW18D-GW-121219	PS	12/12/2019 12:00	10502418003	Water	2					X	
4	MW16D-GW-121219	PS	12/12/2019 12:30	10502418004	Water	2					X	
5	MW17D-GW-121219	PS	12/12/2019 13:30	10502418005	Water	2					X	

					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	
1	<i>J. Pace</i>	<i>12/16/19 1405</i>	<i>B. Matthews</i>	<i>12/17/19</i>	<i>1245</i>
2					
3					

Cooler Temperature on Receipt 0.9 °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

WO#: 12139413

PM: RK1 Due Date: 12/31/19
CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.4 Cooler Temp Corrected °C: 0.9 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: Bm 12/17/19

	Comments:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
All containers needing acid/base preservation properly preserved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

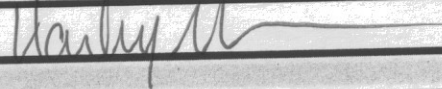
FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Nikki Jarve Date: 12/17/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	PACETWA	L1170997	
Cooler Received/Opened On:	12/14/19	Temperature:	1.2
Received By:	Hailey Melson		
Signature:			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?		/	
Preservation Correct / Checked?			

December 26, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

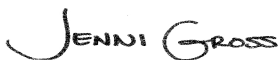
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
---	--

Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
---	--

Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
--	---

Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
--	--

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502423001	Marlow-GW-121119	Water	12/11/19 12:30	12/13/19 09:00
10502423002	Marlow2-GW-121119	Water	12/11/19 13:30	12/13/19 09:00
10502423003	TB-121119	Water	12/11/19 07:00	12/13/19 09:00
10502423004	FD2-GW-121119	Water	12/11/19 12:35	12/13/19 09:00
10502423005	FD3-GW-121119	Water	12/11/19 13:35	12/13/19 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502423001	Marlow-GW-121119	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502423002	Marlow2-GW-121119	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502423003	TB-121119	EPA 8260B	AEZ	83	PASI-M
10502423004	FD2-GW-121119	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	AEZ	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
SM 5310C	ZJT	1	PASI-V		
10502423005	FD3-GW-121119	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	AEZ	83	PASI-M
		SM 2320B	SH4	1	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502423001	Marlow-GW-121119					
EPA 6010D	Barium, Dissolved	31.2	ug/L	10.0	12/22/19 11:51	
EPA 6010D	Chromium, Dissolved	0.95J	ug/L	10.0	12/22/19 11:51	
EPA 6010D	Copper, Dissolved	59.6	ug/L	10.0	12/22/19 11:51	
EPA 6010D	Vanadium, Dissolved	8.8J	ug/L	15.0	12/22/19 11:51	
EPA 6010D	Zinc, Dissolved	92.3	ug/L	20.0	12/22/19 11:51	
SM 2320B	Alkalinity, Total as CaCO3	162	mg/L	5.0	12/18/19 13:07	
SM 2540C	Total Dissolved Solids	271	mg/L	10.0	12/18/19 15:23	
EPA 300.0	Chloride	22.9	mg/L	1.2	12/13/19 11:33	
EPA 300.0	Nitrate as N	4.7	mg/L	0.10	12/13/19 11:33	
EPA 300.0	Sulfate	16.4	mg/L	1.2	12/13/19 11:33	
EPA 353.2	Nitrogen, NO2 plus NO3	4.1	mg/L	0.50	12/19/19 17:04	
SM 5310C	Total Organic Carbon	0.63J	mg/L	1.0	12/18/19 23:00	
10502423002	Marlow2-GW-121119					
EPA 6010D	Barium, Dissolved	17.0	ug/L	10.0	12/22/19 12:00	
EPA 6010D	Chromium, Dissolved	0.71J	ug/L	10.0	12/22/19 12:00	
EPA 6010D	Copper, Dissolved	103	ug/L	10.0	12/22/19 12:00	
EPA 6010D	Nickel, Dissolved	1.8J	ug/L	20.0	12/22/19 12:00	
EPA 6010D	Vanadium, Dissolved	2.2J	ug/L	15.0	12/22/19 12:00	
EPA 6010D	Zinc, Dissolved	776	ug/L	20.0	12/22/19 12:00	
SM 2320B	Alkalinity, Total as CaCO3	272	mg/L	5.0	12/18/19 13:56	
SM 2540C	Total Dissolved Solids	296	mg/L	10.0	12/18/19 15:23	
EPA 300.0	Chloride	1.6	mg/L	1.2	12/13/19 12:11	
EPA 300.0	Nitrate as N	0.41	mg/L	0.10	12/13/19 12:11	
EPA 300.0	Sulfate	2.1	mg/L	1.2	12/13/19 12:11	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.26	mg/L	0.10	12/19/19 13:26	
SM 5310C	Total Organic Carbon	0.50J	mg/L	1.0	12/18/19 23:14	
10502423003	TB-121119					
EPA 8260B	Methylene Chloride	1.2J	ug/L	4.0	12/18/19 00:58	
10502423004	FD2-GW-121119					
EPA 6010D	Barium, Dissolved	32.5	ug/L	10.0	12/22/19 12:11	
EPA 6010D	Copper, Dissolved	67.9	ug/L	10.0	12/22/19 12:11	
EPA 6010D	Vanadium, Dissolved	8.9J	ug/L	15.0	12/22/19 12:11	
EPA 6010D	Zinc, Dissolved	169	ug/L	20.0	12/22/19 12:11	
EPA 8260B	Carbon disulfide	0.43J	ug/L	1.0	12/18/19 04:33	
EPA 8260B	Carbon tetrachloride	97.3	ug/L	2.5	12/19/19 22:22	
EPA 8260B	Chloroform	10.4	ug/L	4.0	12/18/19 04:33	
SM 2320B	Alkalinity, Total as CaCO3	163	mg/L	5.0	12/18/19 14:03	
SM 2540C	Total Dissolved Solids	269	mg/L	10.0	12/18/19 15:23	
EPA 300.0	Chloride	23.2	mg/L	1.2	12/13/19 11:52	
EPA 300.0	Nitrate as N	4.7	mg/L	0.10	12/13/19 11:52	
EPA 300.0	Sulfate	15.8	mg/L	1.2	12/13/19 11:52	
EPA 353.2	Nitrogen, NO2 plus NO3	4.1	mg/L	0.50	12/19/19 17:06	
SM 5310C	Total Organic Carbon	0.56J	mg/L	1.0	12/18/19 23:27	
10502423005	FD3-GW-121119					
EPA 6010D	Barium, Dissolved	16.7	ug/L	10.0	12/22/19 12:14	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502423005	FD3-GW-121119					
EPA 6010D	Copper, Dissolved	98.7	ug/L	10.0	12/22/19 12:14	
EPA 6010D	Nickel, Dissolved	1.9J	ug/L	20.0	12/22/19 12:14	
EPA 6010D	Vanadium, Dissolved	2.0J	ug/L	15.0	12/22/19 12:14	
EPA 6010D	Zinc, Dissolved	715	ug/L	20.0	12/22/19 12:14	
EPA 8260B	Carbon tetrachloride	10.4	ug/L	0.50	12/18/19 04:57	
EPA 8260B	Toluene	0.25J	ug/L	0.50	12/18/19 04:57	
SM 2320B	Alkalinity, Total as CaCO3	273	mg/L	5.0	12/18/19 14:08	
SM 2540C	Total Dissolved Solids	293	mg/L	10.0	12/18/19 15:23	
EPA 300.0	Chloride	1.6	mg/L	1.2	12/13/19 12:30	
EPA 300.0	Nitrate as N	0.41	mg/L	0.10	12/13/19 12:30	
EPA 300.0	Sulfate	2.1	mg/L	1.2	12/13/19 12:30	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.26	mg/L	0.10	12/19/19 13:28	
SM 5310C	Total Organic Carbon	0.47J	mg/L	1.0	12/18/19 23:40	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3497802)
 - Acrolein
 - Bromomethane
- MS (Lab ID: 3497803)
 - Acrolein
 - Bromomethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3497802)
 - Acrolein
- MS (Lab ID: 3497803)
 - Acrolein
- MSD (Lab ID: 3497804)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 26, 2019

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 650497

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3497802)
 - 1,1,2-Trichlorotrifluoroethane
 - Acrolein
 - Dichlorofluoromethane

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650497

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502151001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3497803)
 - Acrolein
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Dichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497803)
 - 2,2-Dichloropropane
 - Chloroethane
 - Chloromethane
 - Trichlorofluoromethane
 - Vinyl chloride
- MSD (Lab ID: 3497804)
 - 2,2-Dichloropropane
 - Chloroethane
 - Trichlorofluoromethane
 - Vinyl chloride

Additional Comments:

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3497801)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 26, 2019

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- FD2-GW-121119 (Lab ID: 10502423004)
 - 1,2-Dichloroethene (Total)
- FD3-GW-121119 (Lab ID: 10502423005)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3497802)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3497803)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3497804)
 - 1,2-Dichloroethene (Total)
- TB-121119 (Lab ID: 10502423003)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3497801)
 - Dichlorofluoromethane
- LCS (Lab ID: 3497802)
 - Dichlorofluoromethane
- MS (Lab ID: 3497803)
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Dichlorofluoromethane

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650529

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502087003,10502423001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3498287)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3498288)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 169011

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20134334001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 766755)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 649885

B: Analyte was detected in the associated method blank.

- BLANK for HBN 649885 [WETA/419 (Lab ID: 3494763)]
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649885

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502418001,10502418002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494767)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3494768)
 - Chloride
 - Nitrate as N

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649894

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502148007,10502418005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3499947)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3499948)
 - Nitrogen, NO2 plus NO3

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 26, 2019

General Information:

4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

Sample: Marlow-GW-121119 **Lab ID: 10502423001** Collected: 12/11/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/18/19 14:38	12/18/19 14:38	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/18/19 14:38	12/18/19 14:38	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/18/19 14:38	12/18/19 14:38	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 11:51	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 11:51	7440-38-2	
Barium, Dissolved	31.2	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 11:51	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 11:51	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 11:51	7440-43-9	
Chromium, Dissolved	0.95J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 11:51	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 11:51	7440-48-4	
Copper, Dissolved	59.6	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 11:51	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 11:51	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 11:51	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 11:51	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 11:51	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 11:51	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 11:51	7440-28-0	
Vanadium, Dissolved	8.8J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 11:51	7440-62-2	
Zinc, Dissolved	92.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 11:51	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:55	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	162	mg/L	5.0	2.0	1		12/18/19 13:07		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	271	mg/L	10.0	5.0	1		12/18/19 15:23		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:32	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	22.9	mg/L	1.2	0.12	1		12/13/19 11:33	16887-00-6	
Nitrate as N	4.7	mg/L	0.10	0.012	1		12/13/19 11:33	14797-55-8	
Sulfate	16.4	mg/L	1.2	0.28	1		12/13/19 11:33	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	4.1	mg/L	0.50	0.088	5		12/19/19 17:04		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 10:02	12/20/19 10:07		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: Marlow-GW-121119 **Lab ID: 10502423001** Collected: 12/11/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.63J	mg/L	1.0	0.39	1		12/18/19 23:00	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: Marlow2-GW-121119 **Lab ID: 10502423002** Collected: 12/11/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/18/19 14:43	12/18/19 14:43	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/18/19 14:43	12/18/19 14:43	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/18/19 14:43	12/18/19 14:43	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:00	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:00	7440-38-2	
Barium, Dissolved	17.0	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:00	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:00	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:00	7440-43-9	
Chromium, Dissolved	0.71J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:00	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:00	7440-48-4	
Copper, Dissolved	103	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:00	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:00	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:00	7439-98-7	
Nickel, Dissolved	1.8J	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:00	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:00	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:00	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:00	7440-28-0	
Vanadium, Dissolved	2.2J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:00	7440-62-2	
Zinc, Dissolved	776	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:00	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 13:57	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	272	mg/L	5.0	2.0	1		12/18/19 13:56		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	296	mg/L	10.0	5.0	1		12/18/19 15:23		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:43	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.6	mg/L	1.2	0.12	1		12/13/19 12:11	16887-00-6	
Nitrate as N	0.41	mg/L	0.10	0.012	1		12/13/19 12:11	14797-55-8	
Sulfate	2.1	mg/L	1.2	0.28	1		12/13/19 12:11	14808-79-8	B
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.26	mg/L	0.10	0.018	1		12/19/19 13:26		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 10:02	12/20/19 10:08		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: Marlow2-GW-121119 **Lab ID: 10502423002** Collected: 12/11/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.50J	mg/L	1.0	0.39	1		12/18/19 23:14	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: **TB-121119** Lab ID: **10502423003** Collected: 12/11/19 07:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 00:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 00:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 00:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 00:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 00:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 00:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 00:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 00:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 00:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 00:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 00:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 00:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 00:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 00:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 00:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 00:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:58	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 00:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 00:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 00:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 00:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 00:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 00:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 00:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 00:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 00:58	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 00:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 00:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 00:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 00:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 00:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 00:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 00:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 00:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 00:58	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/18/19 00:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 00:58	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 00:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 00:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 00:58	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: TB-121119 **Lab ID: 10502423003** Collected: 12/11/19 07:00 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 00:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 00:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 00:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 00:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 00:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 00:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 00:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 00:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 00:58	1634-04-4	
Methylene Chloride	1.2J	ug/L	4.0	0.98	1		12/18/19 00:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 00:58	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 00:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 00:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 00:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 00:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 00:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 00:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 00:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 00:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 00:58	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 00:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 00:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 00:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 00:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 00:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 00:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 00:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 00:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 00:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 00:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 00:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 00:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	117	%	75-136		1		12/18/19 00:58	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/18/19 00:58	2037-26-5	
4-Bromofluorobenzene (S)	111	%	75-125		1		12/18/19 00:58	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: **FD2-GW-121119** Lab ID: **10502423004** Collected: 12/11/19 12:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/18/19 14:45	12/18/19 14:45	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/18/19 14:45	12/18/19 14:45	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/18/19 14:45	12/18/19 14:45	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:11	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:11	7440-38-2	
Barium, Dissolved	32.5	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:11	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:11	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:11	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:11	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:11	7440-48-4	
Copper, Dissolved	67.9	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:11	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:11	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:11	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:11	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:11	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:11	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:11	7440-28-0	
Vanadium, Dissolved	8.9J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:11	7440-62-2	
Zinc, Dissolved	169	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:11	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:00	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 04:33	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:33	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:33	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 04:33	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 04:33	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:33	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 04:33	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:33	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:33	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 04:33	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:33	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:33	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 04:33	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 04:33	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:33	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:33	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 04:33	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 04:33	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 04:33	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:33	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: **FD2-GW-121119** Lab ID: **10502423004** Collected: 12/11/19 12:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 04:33	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:33	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 04:33	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 04:33	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 04:33	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 04:33	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:33	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 04:33	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 04:33	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 04:33	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 04:33	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 04:33	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 04:33	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:33	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:33	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 04:33	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:33	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 04:33	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 04:33	74-83-9	
Carbon disulfide	0.43J	ug/L	1.0	0.19	1		12/18/19 04:33	75-15-0	
Carbon tetrachloride	97.3	ug/L	2.5	0.94	5		12/19/19 22:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:33	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 04:33	75-00-3	
Chloroform	10.4	ug/L	4.0	0.45	1		12/18/19 04:33	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 04:33	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 04:33	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 04:33	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 04:33	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:33	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 04:33	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 04:33	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:33	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:33	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 04:33	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 04:33	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 04:33	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 04:33	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 04:33	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:33	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 04:33	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 04:33	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 04:33	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 04:33	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 04:33	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 04:33	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 04:33	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: FD2-GW-121119 **Lab ID: 10502423004** Collected: 12/11/19 12:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 04:33	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:33	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:33	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 04:33	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:33	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:33	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:33	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:33	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 04:33	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 04:33	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:33	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 04:33	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 04:33	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 04:33	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/18/19 04:33	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/18/19 04:33	2037-26-5	
4-Bromofluorobenzene (S)	109	%	75-125		1		12/18/19 04:33	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	163	mg/L	5.0	2.0	1		12/18/19 14:03		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	269	mg/L	10.0	5.0	1		12/18/19 15:23		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:44	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	23.2	mg/L	1.2	0.12	1		12/13/19 11:52	16887-00-6	
Nitrate as N	4.7	mg/L	0.10	0.012	1		12/13/19 11:52	14797-55-8	
Sulfate	15.8	mg/L	1.2	0.28	1		12/13/19 11:52	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	4.1	mg/L	0.50	0.088	5		12/19/19 17:06		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 10:02	12/20/19 10:08		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.56J	mg/L	1.0	0.39	1		12/18/19 23:27	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: FD3-GW-121119 **Lab ID: 10502423005** Collected: 12/11/19 13:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/18/19 14:47	12/18/19 14:47	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/18/19 14:47	12/18/19 14:47	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/18/19 14:47	12/18/19 14:47	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:14	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:14	7440-38-2	
Barium, Dissolved	16.7	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:14	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:14	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:14	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:14	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:14	7440-48-4	
Copper, Dissolved	98.7	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:14	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:14	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:14	7439-98-7	
Nickel, Dissolved	1.9J	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:14	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:14	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:14	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:14	7440-28-0	
Vanadium, Dissolved	2.0J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:14	7440-62-2	
Zinc, Dissolved	715	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:14	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:02	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 04:57	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:57	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:57	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 04:57	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 04:57	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:57	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 04:57	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:57	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:57	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 04:57	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:57	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:57	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 04:57	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 04:57	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:57	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:57	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 04:57	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 04:57	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 04:57	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:57	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: **FD3-GW-121119** Lab ID: **10502423005** Collected: 12/11/19 13:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 04:57	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:57	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 04:57	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 04:57	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 04:57	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 04:57	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:57	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 04:57	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 04:57	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 04:57	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 04:57	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 04:57	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 04:57	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:57	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:57	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 04:57	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:57	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 04:57	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 04:57	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 04:57	75-15-0	
Carbon tetrachloride	10.4	ug/L	0.50	0.19	1		12/18/19 04:57	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:57	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 04:57	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 04:57	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 04:57	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 04:57	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 04:57	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 04:57	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:57	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 04:57	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 04:57	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:57	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:57	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 04:57	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 04:57	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 04:57	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 04:57	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 04:57	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:57	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 04:57	109-99-9	
Toluene	0.25J	ug/L	0.50	0.083	1		12/18/19 04:57	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 04:57	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 04:57	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 04:57	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 04:57	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 04:57	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Sample: FD3-GW-121119 **Lab ID:** 10502423005 Collected: 12/11/19 13:35 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 04:57	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:57	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:57	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 04:57	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:57	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:57	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:57	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:57	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 04:57	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 04:57	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:57	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 04:57	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 04:57	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 04:57	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	122	%	75-136		1		12/18/19 04:57	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/18/19 04:57	2037-26-5	
4-Bromofluorobenzene (S)	111	%	75-125		1		12/18/19 04:57	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	273	mg/L	5.0	2.0	1		12/18/19 14:08		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	293	mg/L	10.0	5.0	1		12/18/19 15:23		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/18/19 16:45	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.6	mg/L	1.2	0.12	1		12/13/19 12:30	16887-00-6	
Nitrate as N	0.41	mg/L	0.10	0.012	1		12/13/19 12:30	14797-55-8	
Sulfate	2.1	mg/L	1.2	0.28	1		12/13/19 12:30	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.26	mg/L	0.10	0.018	1		12/19/19 13:28		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 10:02	12/20/19 10:08		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.47J	mg/L	1.0	0.39	1		12/18/19 23:40	7440-44-0	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 1398410 Analysis Method: RSK-175
QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: R3483767-1 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/18/19 14:03	
Ethane	ug/L	<4.07	13.0	4.07	12/18/19 14:03	
Ethene	ug/L	<4.26	13.0	4.26	12/18/19 14:03	

LABORATORY CONTROL SAMPLE & LCSD: R3483767-4 R3483767-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	71.5	66.5	105	98.1	85.0-115	7.25	20	
Ethane	ug/L	129	130	130	101	101	85.0-115	0.00	20	
Ethene	ug/L	127	123	125	96.9	98.4	85.0-115	1.61	20	

SAMPLE DUPLICATE: R3483767-2

Parameter	Units	L1170944-05 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3483767-3

Parameter	Units	L1171566-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	8.78	7.58J	14.7	20 J	
Ethane	ug/L	61.2	58.9	3.83	20	
Ethene	ug/L	187	181	3.26	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 650105 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3496420 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/20/19 13:24	

LABORATORY CONTROL SAMPLE: 3496421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3496422 3496423

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502418002 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury, Dissolved	ug/L	<0.093	5	5	5	5.2	5.1	104	102	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

QC Batch: 651190

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010

Analysis Description: 6010D Water Dissolved

Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3501700

Matrix: Water

Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/22/19 10:35	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/22/19 10:35	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/22/19 10:35	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/22/19 10:35	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/22/19 10:35	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/22/19 10:35	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/22/19 10:35	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/22/19 10:35	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/22/19 10:35	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/22/19 10:35	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/22/19 10:35	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/22/19 10:35	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/22/19 10:35	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/22/19 10:35	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/22/19 10:35	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/22/19 10:35	

LABORATORY CONTROL SAMPLE: 3501701

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1100	110	80-120	
Arsenic, Dissolved	ug/L	1000	1090	109	80-120	
Barium, Dissolved	ug/L	1000	1070	107	80-120	
Beryllium, Dissolved	ug/L	1000	1050	105	80-120	
Cadmium, Dissolved	ug/L	1000	1100	110	80-120	
Chromium, Dissolved	ug/L	1000	1060	106	80-120	
Cobalt, Dissolved	ug/L	1000	1070	107	80-120	
Copper, Dissolved	ug/L	1000	1050	105	80-120	
Lead, Dissolved	ug/L	1000	1090	109	80-120	
Molybdenum, Dissolved	ug/L	1000	1070	107	80-120	
Nickel, Dissolved	ug/L	1000	1080	108	80-120	
Selenium, Dissolved	ug/L	1000	1090	109	80-120	
Silver, Dissolved	ug/L	500	531	106	80-120	
Thallium, Dissolved	ug/L	1000	1100	110	80-120	
Vanadium, Dissolved	ug/L	1000	1050	105	80-120	
Zinc, Dissolved	ug/L	1000	1100	110	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Parameter	Units	10502418003		3501702		3501703		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Antimony, Dissolved	ug/L	<7.0	1000	1000	1070	906	107	91	75-125	17	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1070	900	107	90	75-125	17	20			
Barium, Dissolved	ug/L	51.6	1000	1000	1090	927	104	88	75-125	16	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1010	854	101	85	75-125	17	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1070	898	107	90	75-125	17	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	1030	879	103	88	75-125	16	20			
Cobalt, Dissolved	ug/L	<0.50	1000	1000	1030	871	103	87	75-125	17	20			
Copper, Dissolved	ug/L	<1.2	1000	1000	1020	859	102	86	75-125	17	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	1050	883	105	88	75-125	17	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1040	883	104	88	75-125	17	20			
Nickel, Dissolved	ug/L	<1.1	1000	1000	1040	876	104	88	75-125	17	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	887	105	89	75-125	17	20			
Silver, Dissolved	ug/L	<0.40	500	500	517	432	103	86	75-125	18	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	1040	888	104	89	75-125	16	20			
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1030	870	103	87	75-125	17	20			
Zinc, Dissolved	ug/L	<6.3	1000	1000	1060	893	105	89	75-125	17	20			

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

QC Batch: 650497 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502423003, 10502423004, 10502423005

METHOD BLANK: 3497801 Matrix: Water

Associated Lab Samples: 10502423003, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	12/17/19 22:58	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/17/19 22:58	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/17/19 22:58	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/17/19 22:58	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/17/19 22:58	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/17/19 22:58	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/17/19 22:58	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/17/19 22:58	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/17/19 22:58	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/17/19 22:58	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/17/19 22:58	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/17/19 22:58	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/17/19 22:58	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/17/19 22:58	
Acetone	ug/L	<9.2	20.0	9.2	12/17/19 22:58	
Acrolein	ug/L	<3.2	100	3.2	12/17/19 22:58	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/17/19 22:58	
Benzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/17/19 22:58	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
Bromoform	ug/L	<0.80	4.0	0.80	12/17/19 22:58	
Bromomethane	ug/L	<1.8	4.0	1.8	12/17/19 22:58	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/17/19 22:58	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/17/19 22:58	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

METHOD BLANK: 3497801

Matrix: Water

Associated Lab Samples: 10502423003, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Chloroethane	ug/L	<0.49	1.0	0.49	12/17/19 22:58	
Chloroform	ug/L	<0.45	4.0	0.45	12/17/19 22:58	
Chloromethane	ug/L	<0.48	4.0	0.48	12/17/19 22:58	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	12/17/19 22:58	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/17/19 22:58	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/17/19 22:58	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/17/19 22:58	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Naphthalene	ug/L	<0.48	1.0	0.48	12/17/19 22:58	
o-Xylene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Styrene	ug/L	<0.19	0.50	0.19	12/17/19 22:58	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/17/19 22:58	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/17/19 22:58	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Tetrahydrofuran	ug/L	<2.2	40.0	2.2	12/17/19 22:58	
Toluene	ug/L	<0.083	0.50	0.083	12/17/19 22:58	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/17/19 22:58	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/17/19 22:58	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/17/19 22:58	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/17/19 22:58	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/17/19 22:58	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/17/19 22:58	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/17/19 22:58	
1,2-Dichloroethane-d4 (S)	%	117	75-136		12/17/19 22:58	
4-Bromofluorobenzene (S)	%	111	75-125		12/17/19 22:58	
Toluene-d8 (S)	%	102	75-125		12/17/19 22:58	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	100	68-141	
1,1,1-Trichloroethane	ug/L	20	21.2	106	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	26.5	133	69-132	L3
1,1-Dichloroethane	ug/L	20	23.7	118	73-125	
1,1-Dichloroethene	ug/L	20	22.0	110	71-126	
1,1-Dichloropropene	ug/L	20	21.3	106	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.0	90	72-126	
1,2,3-Trichloropropane	ug/L	20	20.6	103	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.0	85	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.1	101	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.3	91	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	101	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	41.0	102	74-125	N2
1,2-Dichloropropane	ug/L	20	21.7	109	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-127	
1,3-Dichlorobenzene	ug/L	20	20.7	104	75-126	
1,3-Dichloropropane	ug/L	20	21.0	105	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	422	106	72-129	
2,2,4-Trimethylpentane	ug/L	20	20.5	103	72-128	
2,2-Dichloropropane	ug/L	20	23.8	119	65-138	
2-Butanone (MEK)	ug/L	100	104	104	59-144	
2-Chlorotoluene	ug/L	20	20.9	105	75-127	
2-Hexanone	ug/L	100	99.0	99	73-134	
4-Chlorotoluene	ug/L	20	20.2	101	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.9	98	62-141	
Acetone	ug/L	100	110	110	60-137	
Acrolein	ug/L	200	306	153	60-141	CH,L3,SS
Acrylonitrile	ug/L	200	216	108	75-129	
Benzene	ug/L	20	21.0	105	73-125	
Bromobenzene	ug/L	20	20.4	102	73-125	
Bromochloromethane	ug/L	20	17.2	86	75-135	
Bromodichloromethane	ug/L	20	21.4	107	75-125	
Bromoform	ug/L	20	21.2	106	67-136	
Bromomethane	ug/L	20	21.8	109	30-150	SS
Carbon disulfide	ug/L	20	18.6	93	47-137	
Carbon tetrachloride	ug/L	20	20.5	102	75-125	
Chlorobenzene	ug/L	20	20.1	101	75-125	
Chloroethane	ug/L	20	22.3	111	63-136	
Chloroform	ug/L	20	18.9	95	73-128	
Chloromethane	ug/L	20	18.1	90	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.2	106	75-125	
Dibromomethane	ug/L	20	17.7	88	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	27.7	139	68-127	L3
Diisopropyl ether	ug/L	20	23.0	115	71-131	
Ethyl-tert-butyl ether	ug/L	20	21.2	106	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.5	87	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.1	96	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-126	
Methyl-tert-butyl ether	ug/L	20	23.4	117	75-125	
Methylene Chloride	ug/L	20	24.0	120	70-125	
n-Butylbenzene	ug/L	20	21.5	107	75-126	
n-Propylbenzene	ug/L	20	20.5	103	73-127	
Naphthalene	ug/L	20	19.1	96	63-128	
o-Xylene	ug/L	20	18.8	94	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	18.7	93	75-125	
tert-Amylmethyl ether	ug/L	20	20.9	104	75-125	
tert-Butyl Alcohol	ug/L	200	244	122	75-130	
tert-Butylbenzene	ug/L	20	20.1	101	75-131	
Tetrachloroethene	ug/L	20	18.8	94	74-125	
Tetrahydrofuran	ug/L	200	146	73	64-138	
Toluene	ug/L	20	19.4	97	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	68-128	
trans-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5	99	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	23.9	120	72-133	
Vinyl acetate	ug/L	20	20.8	104	61-129	
Vinyl chloride	ug/L	20	23.0	115	75-128	
Xylene (Total)	ug/L	60	57.4	96	75-125	
1,2-Dichloroethane-d4 (S)	%			111	75-136	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502151001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.1	19.4	100	97	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.2	25.6	111	128	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	22.6	23.5	113	118	66-134	4	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.9	20.3	100	102	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3497803		3497804									
Parameter	Units	10502151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	29.0	28.1	145	141	65-146	3	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.7	24.4	123	122	68-132	1	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	23.8	23.3	119	116	66-139	2	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	21.6	24.5	108	122	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	17.8	18.5	89	92	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20.7	21.6	104	108	69-128	4	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	16.9	17.9	84	90	65-140	6	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.9	20.1	100	101	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.4	48.4	95	97	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	18.9	19.5	94	98	68-125	4	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.7	20.3	98	101	74-136	3	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	19.7	19.5	99	98	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	44.1	44.3	110	111	71-126	0	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.1	21.3	106	106	67-125	1	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.8	20.3	99	102	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.7	20.4	99	102	75-131	3	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	20.2	20.6	101	103	71-125	2	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.4	19.6	97	98	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	353	390	88	98	68-125	10	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.5	20.3	103	102	54-129	1	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	28.2	29.1	141	145	69-139	3	30	M1	
2-Butanone (MEK)	ug/L	<0.99	100	100	99.7	107	100	107	54-144	7	30		
2-Chlorotoluene	ug/L	<0.16	20	20	20.6	21.0	103	105	75-134	2	30		
2-Hexanone	ug/L	<0.88	100	100	99.3	101	99	101	58-137	2	30		
4-Chlorotoluene	ug/L	<0.13	20	20	19.6	20.2	98	101	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	102	104	102	104	60-129	2	30		
Acetone	ug/L	<9.2	100	100	91.8	88.7	92	89	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	389	379	195	190	30-150	3	30	CH, M0,SS	
Acrylonitrile	ug/L	<0.91	200	200	229	235	115	118	68-125	3	30		
Benzene	ug/L	<0.10	20	20	20.3	20.5	102	102	68-125	1	30		
Bromobenzene	ug/L	<0.21	20	20	19.3	20.2	96	101	73-126	5	30		
Bromochloromethane	ug/L	<0.27	20	20	19.5	19.8	98	99	66-143	1	30		
Bromodichloromethane	ug/L	<0.22	20	20	21.0	21.3	105	106	74-125	1	30		
Bromoform	ug/L	<0.80	20	20	20.9	21.6	104	108	64-134	3	30		
Bromomethane	ug/L	<1.8	20	20	28.0	27.8	140	139	30-150	1	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	18.6	18.2	93	91	43-147	3	30		
Carbon tetrachloride	ug/L	<0.19	20	20	24.6	25.8	123	129	71-143	5	30		
Chlorobenzene	ug/L	<0.17	20	20	19.3	19.6	97	98	75-125	1	30		
Chloroethane	ug/L	<0.49	20	20	33.6	28.4	168	142	75-129	17	30	M1	
Chloroform	ug/L	<0.45	20	20	21.8	22.0	109	110	66-132	1	30		
Chloromethane	ug/L	<0.48	20	20	27.7	25.8	139	129	53-137	7	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	20.9	22.1	105	110	67-133	5	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	18.8	95	94	66-125	1	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804													
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10502151001 Result	Spike Conc.	Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.4	21.1	102	105	62-132	3	30		
Dibromomethane	ug/L	<0.16	20	20	16.5	16.7	83	83	67-125	1	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.5	25.5	132	127	71-142	4	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	31.0	29.7	155	149	70-131	4	30	M0	
Diisopropyl ether	ug/L	<0.13	20	20	24.0	23.9	120	119	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	24.0	107	120	66-128	11	30		
Ethylbenzene	ug/L	<0.14	20	20	19.5	19.6	98	98	74-126	0	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	17.5	17.9	87	90	68-143	3	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	19.1	19.3	95	96	74-130	1	30		
m&p-Xylene	ug/L	<0.31	40	40	37.6	38.0	94	95	69-132	1	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	24.8	23.2	124	116	65-131	6	30		
Methylene Chloride	ug/L	<0.98	20	20	23.5	23.4	116	115	57-125	1	30		
n-Butylbenzene	ug/L	<0.24	20	20	21.3	21.8	107	109	71-131	2	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.4	21.3	102	106	67-138	4	30		
Naphthalene	ug/L	<0.48	20	20	19.7	19.7	99	99	60-130	0	30		
o-Xylene	ug/L	<0.16	20	20	18.4	18.5	92	93	69-131	1	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	20.3	21.2	102	106	72-133	4	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.3	21.7	106	108	73-134	2	30		
Styrene	ug/L	<0.19	20	20	18.1	18.3	91	91	72-125	1	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	20.2	20.6	101	103	67-125	2	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	212	229	106	115	64-137	8	30		
tert-Butylbenzene	ug/L	<0.15	20	20	20.5	21.0	102	105	70-143	3	30		
Tetrachloroethene	ug/L	<0.17	20	20	18.4	19.0	92	95	72-129	3	30		
Tetrahydrofuran	ug/L	<2.2	200	200	141	174	70	87	66-128	21	30		
Toluene	ug/L	<0.083	20	20	18.8	19.2	94	96	73-125	2	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	23.1	22.2	116	111	62-137	4	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	20.7	21.0	104	105	61-136	1	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	49.8	52.0	100	104	45-128	4	30		
Trichloroethene	ug/L	<0.15	20	20	19.2	19.4	96	97	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	31.0	32.0	155	160	75-139	3	30	M1	
Vinyl acetate	ug/L	<1.1	20	20	19.8	22.4	99	112	51-135	12	30		
Vinyl chloride	ug/L	<0.092	20	20	32.3	31.9	161	159	68-146	1	30	M1	
Xylene (Total)	ug/L	<0.31	60	60	56.0	56.5	93	94	67-137	1	30		
1,2-Dichloroethane-d4 (S)	%						113	111	75-136				
4-Bromofluorobenzene (S)	%						101	106	75-125				
Toluene-d8 (S)	%						98	100	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 650529 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3498284 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	12/18/19 11:43	

LABORATORY CONTROL SAMPLE & LCSD: 3498285 3498286

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.5	42.8	106	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498287 3498288

Parameter	Units	10502087003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	775	40	40	828	833	131	144	80-120	1	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498289 3498290

Parameter	Units	10502423001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	162	40	40	203	206	103	111	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

QC Batch: 650621

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3498567

Matrix: Water

Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/18/19 15:23	

LABORATORY CONTROL SAMPLE: 3498568

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	990	99	80-120	

SAMPLE DUPLICATE: 3498570

Parameter	Units	10502393001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	690	684	1	5	

SAMPLE DUPLICATE: 3498571

Parameter	Units	10502393002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	746	749	0	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 169011 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 766752 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/18/19 11:53	

LABORATORY CONTROL SAMPLE: 766753

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	95	90-110	

MATRIX SPIKE SAMPLE: 766755

Parameter	Units	20134334001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.020	0.2	0.062	27	75-125	M1

SAMPLE DUPLICATE: 766754

Parameter	Units	20134334001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.020	0.0083J		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 649885 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3494763 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/13/19 20:28	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/13/19 20:28	
Sulfate	mg/L	0.50J	1.2	0.28	12/13/19 20:28	

LABORATORY CONTROL SAMPLE: 3494764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.9	95	90-110	
Nitrate as N	mg/L	1	0.93	93	90-110	
Sulfate	mg/L	12.5	11.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494765 3494766

Parameter	Units	10502418001		10502418002		3494765		3494766		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	23.0	12.5	12.5	35.2	35.3	98	98	90-110	0	20		
Nitrate as N	mg/L	2.1	1	1	3.1	3.1	99	100	90-110	0	20		
Sulfate	mg/L	8.8	12.5	12.5	21.9	21.7	105	104	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494767 3494768

Parameter	Units	10502418002		10502418001		3494767		3494768		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	2.6	12.5	12.5	17.4	17.7	119	121	90-110	1	20	M1	
Nitrate as N	mg/L	0.063J	1	1	1.2	1.2	116	118	90-110	1	20	M1	
Sulfate	mg/L	6.6	12.5	12.5	19.7	20.1	105	108	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 649894 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3494812 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 13:34	FS

LABORATORY CONTROL SAMPLE: 3494813

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.92	92	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494814 3494815

Parameter	Units	10502148007		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.15	1	1	1.2	1.2	105	106	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499947 3499948

Parameter	Units	10502418005		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	1.1	1.1	113	114	90-110	1	20	FS,M1	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 650832 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 3499821 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/20/19 10:07	

LABORATORY CONTROL SAMPLE: 3499822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	300	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499823 3499824

Parameter	Units	10502423001		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chemical Oxygen Demand	mg/L	<17.0	250	250	251	248	100	99	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499825 3499826

Parameter	Units	10502423002		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chemical Oxygen Demand	mg/L	<17.0	250	250	247	262	99	105	90-110	6	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

QC Batch: 181265 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

METHOD BLANK: 716690 Matrix: Water
Associated Lab Samples: 10502423001, 10502423002, 10502423004, 10502423005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/18/19 20:50	

LABORATORY CONTROL SAMPLE: 716691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716692 716693

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		12139302003	Result	Spike Conc.	Conc.	Result	Result	% Rec	% Rec				
Total Organic Carbon	mg/L	5.2	25	25	30.2	30.6	100	102	80-120	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716694 716695

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10502648006	Result	Spike Conc.	Conc.	Result	Result	% Rec	% Rec				
Total Organic Carbon	mg/L	1.1	25	25	27.3	27.2	105	104	80-120	1	20		

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
 ND - Not Detected at or above adjusted reporting limit.
 TNTC - Too Numerous To Count
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 PQL - Practical Quantitation Limit.
 RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
 S - Surrogate
 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
 TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National
 PASI-M Pace Analytical Services - Minneapolis
 PASI-N Pace Analytical Services - New Orleans
 PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.
 CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
 FS The sample was filtered in the laboratory prior to analysis.
 J Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
 L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
 M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
 M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
 SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502423

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502423

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502423001	Marlow-GW-121119	RSK175	1398410	RSK-175	1398410
10502423002	Marlow2-GW-121119	RSK175	1398410	RSK-175	1398410
10502423004	FD2-GW-121119	RSK175	1398410	RSK-175	1398410
10502423005	FD3-GW-121119	RSK175	1398410	RSK-175	1398410
10502423001	Marlow-GW-121119	EPA 3010	651190	EPA 6010D	651349
10502423002	Marlow2-GW-121119	EPA 3010	651190	EPA 6010D	651349
10502423004	FD2-GW-121119	EPA 3010	651190	EPA 6010D	651349
10502423005	FD3-GW-121119	EPA 3010	651190	EPA 6010D	651349
10502423001	Marlow-GW-121119	EPA 7470A	650105	EPA 7470A	650460
10502423002	Marlow2-GW-121119	EPA 7470A	650105	EPA 7470A	650460
10502423004	FD2-GW-121119	EPA 7470A	650105	EPA 7470A	650460
10502423005	FD3-GW-121119	EPA 7470A	650105	EPA 7470A	650460
10502423003	TB-121119	EPA 8260B	650497		
10502423004	FD2-GW-121119	EPA 8260B	650497		
10502423005	FD3-GW-121119	EPA 8260B	650497		
10502423001	Marlow-GW-121119	SM 2320B	650529		
10502423002	Marlow2-GW-121119	SM 2320B	650529		
10502423004	FD2-GW-121119	SM 2320B	650529		
10502423005	FD3-GW-121119	SM 2320B	650529		
10502423001	Marlow-GW-121119	SM 2540C	650621		
10502423002	Marlow2-GW-121119	SM 2540C	650621		
10502423004	FD2-GW-121119	SM 2540C	650621		
10502423005	FD3-GW-121119	SM 2540C	650621		
10502423001	Marlow-GW-121119	SM 4500-S-2 D	169011		
10502423002	Marlow2-GW-121119	SM 4500-S-2 D	169011		
10502423004	FD2-GW-121119	SM 4500-S-2 D	169011		
10502423005	FD3-GW-121119	SM 4500-S-2 D	169011		
10502423001	Marlow-GW-121119	EPA 300.0	649885		
10502423002	Marlow2-GW-121119	EPA 300.0	649885		
10502423004	FD2-GW-121119	EPA 300.0	649885		
10502423005	FD3-GW-121119	EPA 300.0	649885		
10502423001	Marlow-GW-121119	EPA 353.2	649894		
10502423002	Marlow2-GW-121119	EPA 353.2	649894		
10502423004	FD2-GW-121119	EPA 353.2	649894		
10502423005	FD3-GW-121119	EPA 353.2	649894		
10502423001	Marlow-GW-121119	EPA 410.4	650832	EPA 410.4	650909
10502423002	Marlow2-GW-121119	EPA 410.4	650832	EPA 410.4	650909
10502423004	FD2-GW-121119	EPA 410.4	650832	EPA 410.4	650909
10502423005	FD3-GW-121119	EPA 410.4	650832	EPA 410.4	650909
10502423001	Marlow-GW-121119	SM 5310C	181265		
10502423002	Marlow2-GW-121119	SM 5310C	181265		
10502423004	FD2-GW-121119	SM 5310C	181265		
10502423005	FD3-GW-121119	SM 5310C	181265		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:			Section B Required Project Information:			Section C Invoice Information:			Page: <u>1</u> Of <u>1</u>		
Company: UPRR Jacobs	Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Email:	Report To: Mark Ochsner, Brad Ostapkowicz	Copy To: Steve Damas, Jonathan Espinoza	Project Name: Freeman WA-Cenex Harvest Lease	Attention: Anne Walsh	Company: UPRR	Address: 1400 W. 52nd Ave, Denver, CO 80221	Pace Quote: Contract# 9900758936	Pace Profile #: 36447/4	Regulatory Agency:
Phone:	Fax:	Requested Due Date: 10 Day Standard	Purchase Order #: PEDD# 1497	Copy To: David Hodson, UPRR-Sydat@dhd.com	Project #:						State / Location: WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, -, /, \) Sample IDs must be unique.	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test	Requested Analytes Filtered (Y/N)	LABORATORY									
				DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	HNO3 + Zn Acetate	Other	Low Level VOCs by 8260				6010/4/10 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethane RSK175	COD 410 4	Nitrate+Nitrite 353.2
1	Marlow-Gw-121119	WTG		12/11	1230	-	10	X	X	X		X		X	X	X	X	X	X	X	X					001
2	Marlow2-Gw-121119	↓			1330		10	X	X	X		X		X	X	X	X	X	X	X	X					002
3	TB-121119	↓			700		3				X			X												003
4	FDZ-Gw-121119	WTG		12/11	1235		13	X	X	X	X	X		X	X	X	X	X	X	X	X					004
5	FD3-Gw-121119	↓			1335		13	X	X	X	X	X		X	X	X	X	X	X	X	X					005

WO#: 10502423

10502423

ADDITIONAL COMMENTS	RELINQUISHED BY / APPLICATION	DATE	TIME	ACCEPTED BY / APPLICATION	DATE	TIME	SAMPLE CONDITIONS
Short hold analyses are in bold	J Li / Jacobs	12/11/19	1600		12-13-19	9:00	26.0, 4 4 4

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:						
SIGNATURE of SAMPLER:	DATE Signed: 12/11/19					

Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502423**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9400 8430

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>2.6, 0.1, 1.2/13</u> °C	Average Corrected Temp (no temp blank only): <input checked="" type="checkbox"/> See Exceptions
Correction Factor: <u>-0.1</u>	Cooler Temp Corrected w/temp blank: _____ °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 12/13/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-4</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) TS1 12/13/19	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <u>1/1</u> <input checked="" type="checkbox"/> H ₂ SO ₄ <u>1/1</u> <input type="checkbox"/> Zinc Acetate <u>1/1</u>
Exceptions: <u>VOA</u> , Coliform, <u>TOC</u> /DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip <u>203619</u>
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>236659</u>
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

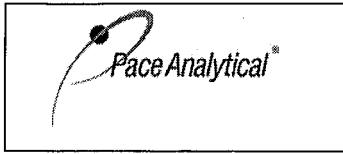
CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Jina Shari **Date:** 12/13/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).



Document Name:
SCUR Exception Form – Coolers Above 6°C

Document No.:
F-MN-C-298-Rev.02

Document Revised: 08Apr2019
Page 1 of 2

Issuing Authority:
Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:


Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																		
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																		
			<table border="1"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr> <td>1.7</td> <td>1.6</td> <td>2.6</td> </tr> <tr> <td>3.3</td> <td>3.2</td> <td></td> </tr> <tr> <td>2.2</td> <td>2.1</td> <td></td> </tr> <tr> <td>5.6</td> <td>3.5</td> <td></td> </tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp	1.7	1.6	2.6	3.3	3.2		2.2	2.1		5.6	3.5	
No Temp Blank																					
Read Temp	Corrected Temp	Average Temp																			
1.7	1.6	2.6																			
3.3	3.2																				
2.2	2.1																				
5.6	3.5																				

Tracking Number/Temperature

Other Issues		
Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page <u>2</u> Of <u>2</u>
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No												
			If yes, indicate who was contacted/date/time. If no, indicate reason why.												
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.												
			No Temp Blank <table border="1" style="width: 100%;"> <thead> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr> <td>0.1</td> <td>0.0</td> <td rowspan="4" style="vertical-align: middle;">0.1</td> </tr> <tr> <td>-0.1</td> <td>-0.2</td> </tr> <tr> <td>0.2</td> <td>0.1</td> </tr> <tr> <td>0.3</td> <td>0.2</td> </tr> </tbody> </table>	Read Temp	Corrected Temp	Average Temp	0.1	0.0	0.1	-0.1	-0.2	0.2	0.1	0.3	0.2
Read Temp	Corrected Temp	Average Temp													
0.1	0.0	0.1													
-0.1	-0.2														
0.2	0.1														
0.3	0.2														

Tracking Number/Temperature

Other Issues		
Issue Type:	Container Type	# of Containers
Sample ID		

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	



Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Workorder: 10502423

Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/13/2019 Results Requested By: 12/30/2019

Report To		Subcontract To					Requested Analysis																								
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333					5636267 / 4500 Sulfide																								
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers													LAB USE ONLY												
						NaOH + Zn, Ac																									
						-BPZZ																									
1	Marlow-GW-121119	PS	12/11/2019 12:30	10502423001	Water	1																									
2	Marlow2-GW-121119	PS	12/11/2019 13:30	10502423002	Water	1																									
3	FD2-GW-121119	PS	12/11/2019 12:35	10502423004	Water	1																									
4	FD3-GW-121119	PS	12/11/2019 13:35	10502423005	Water	1																									
5																															
Transfers						Comments																									
	Released By	Date/Time	Received By	Date/Time		SHORT HOLD!!																									
1	<i>[Signature]</i>	12/11/19 16:05	FedEx																												
2	FedEx	12/11/19 8:15	<i>[Signature]</i>	12/11/19 8:15																											
3																															
Cooler Temperature on Receipt		2.7 °C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact					Y or N																			

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upo

PM: CMM

Due Date: 12/30/19

CLIENT: PASI-MINN

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Pi

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12-14-19 JH

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

WO#: 12139420



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No
 Owner Received Date: 12/13/2019 Results Requested By: 12/30/2019

Workorder: 10502423 Workorder Name: Freeman WA-Cenex Harvest Lease

Report To		Subcontract To						Requested Analysis																		
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042						5632354 / 5310 TOC																		
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	H2SO4 - DGSS																				
1	Marlow-GW-121119	PS	12/11/2019 12:30	10502423001	Water	2																				
2	Marlow2-GW-121119	PS	12/11/2019 13:30	10502423002	Water	2																				
3	FD2-GW-121119	PS	12/11/2019 12:35	10502423004	Water	2																				
4	FD3-GW-121119	PS	12/11/2019 13:35	10502423005	Water	2																				
5																										
Transfers		Released By	Date/Time	Received By	Date/Time	Comments																				
1		<i>nk/pace</i>	<i>12/16/19 1405</i>	<i>B. Mathews</i>	<i>12/17/19 1245</i>																					
2																										
3																										
Cooler Temperature on Receipt		0.9 °C	Custody Seal		Y or N	Received on Ice		Y or N	Samples Intact														Y or N			

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.



Document Name:
Sample Condition Upon Receipt Form
Document No.:
F-VM-C-001-rev.13

Document Revised: 30Apr2019
Page 1 of 1
Issuing Authority:
Pace Virginia Minnesota Quality Office

Sample Condition Upon Receipt

Client Name:

Pace Mpls

Project #:

WO#: 12139420

PM: RK1

Due Date: 12/31/19

CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.4 Cooler Temp Corrected °C: 0.9 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: Bm 12/17/19

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Nikki Jarve

Date: 12/17/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

D162



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/13/2019 Results Requested By: 12/30/2019

Workorder: 10502423 Workorder Name: Freeman WA-Cenex Harvest Lease

Report To		Subcontract To					Requested Analysis																																																																																																																		
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace National 12065 Lebanon Road Mt. Juliet, TN 37122					<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">5644436 / RSK-175</div> <table border="1" style="width: 100%; height: 100%;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> </div>																																																																																																																		
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Unp. - VSG															LAB USE ONLY																																																																																																				
1	Marlow-GW-121119	PS	12/11/2019 12:30	10502423001	Water	3															21171065-01																																																																																																				
2	Marlow2-GW-121119	PS	12/11/2019 13:30	10502423002	Water	3															02																																																																																																				
3	FD2-GW-121119	PS	12/11/2019 12:35	10502423004	Water	3															03																																																																																																				
4	FD3-GW-121119	PS	12/11/2019 13:35	10502423005	Water	3															04																																																																																																				
5																																																																																																																									

Transfers						Comments					
Released By	Date/Time	Received By	Date/Time								
<i>[Signature]</i>	12/13/19 15:40	<i>[Signature]</i>	12/14/19 9:00	SHORT HOLD!!							
										**need methane, ethane, ethene	

Cooler Temperature on Receipt 1.2 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N


***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

1.1 + .1 = 1.2 *uw*
RC

1320 7518 4539

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	PACETWA	L1171006
Cooler Received/Opened On:	12/14/19	Temperature: 1.2
Received By:	Hailey Melson	
Signature:		
Receipt Check List	NP	Yes No
COC Seal Present / Intact?		/
COC Signed / Accurate?		/
Bottles arrive intact?		/
Correct bottles used?		/
Sufficient volume sent?		
If Applicable		/
VOA Zero headspace?		
Preservation Correct / Checked?		

December 20, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

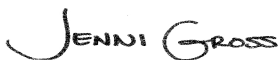
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502424

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502424001	Marlow-GW-121119	Water	12/11/19 12:30	12/13/19 09:00
10502424002	Marlow2-GW-121119	Water	12/11/19 13:30	12/13/19 09:00

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502424

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502424001	Marlow-GW-121119	EPA 8260B	AEZ	83	PASI-M
10502424002	Marlow2-GW-121119	EPA 8260B	AEZ	83	PASI-M

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502424001	Marlow-GW-121119					
EPA 8260B	Carbon disulfide	0.45J	ug/L	1.0	12/18/19 03:45	
EPA 8260B	Carbon tetrachloride	94.9	ug/L	2.5	12/19/19 22:40	
EPA 8260B	Chloroform	11.4	ug/L	4.0	12/18/19 03:45	
10502424002	Marlow2-GW-121119					
EPA 8260B	Carbon tetrachloride	9.7	ug/L	0.50	12/18/19 04:09	
EPA 8260B	Toluene	0.27J	ug/L	0.50	12/18/19 04:09	

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 20, 2019

General Information:

2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

SS: This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

- LCS (Lab ID: 3497802)
 - Acrolein
 - Bromomethane
- MS (Lab ID: 3497803)
 - Acrolein
 - Bromomethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Bromomethane

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 650497

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3497802)
 - Acrolein
- MS (Lab ID: 3497803)
 - Acrolein
- MSD (Lab ID: 3497804)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 20, 2019

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 650497

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3497802)
 - 1,1,2-Trichlorotrifluoroethane
 - Acrolein
 - Dichlorofluoromethane

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650497

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502151001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 3497803)
 - Acrolein
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Acrolein
 - Dichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497803)
 - 2,2-Dichloropropane
 - Chloroethane
 - Chloromethane
 - Trichlorofluoromethane
 - Vinyl chloride
- MSD (Lab ID: 3497804)
 - 2,2-Dichloropropane
 - Chloroethane
 - Trichlorofluoromethane
 - Vinyl chloride

Additional Comments:

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3497801)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 20, 2019

Analyte Comments:

QC Batch: 650497

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 3497802)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3497803)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3497804)
 - 1,2-Dichloroethene (Total)
- Marlow-GW-121119 (Lab ID: 10502424001)
 - 1,2-Dichloroethene (Total)
- Marlow2-GW-121119 (Lab ID: 10502424002)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3497801)
 - Dichlorofluoromethane
- LCS (Lab ID: 3497802)
 - Dichlorofluoromethane
- MS (Lab ID: 3497803)
 - Dichlorofluoromethane
- MSD (Lab ID: 3497804)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Sample: Marlow-GW-121119 Lab ID: 10502424001 Collected: 12/11/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 03:45	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 03:45	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 03:45	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 03:45	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 03:45	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 03:45	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 03:45	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:45	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 03:45	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 03:45	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:45	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:45	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 03:45	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 03:45	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 03:45	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 03:45	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 03:45	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 03:45	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 03:45	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:45	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 03:45	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:45	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 03:45	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 03:45	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 03:45	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 03:45	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:45	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 03:45	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 03:45	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 03:45	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 03:45	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 03:45	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 03:45	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 03:45	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 03:45	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 03:45	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 03:45	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 03:45	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 03:45	74-83-9	
Carbon disulfide	0.45J	ug/L	1.0	0.19	1		12/18/19 03:45	75-15-0	
Carbon tetrachloride	94.9	ug/L	2.5	0.94	5		12/19/19 22:40	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:45	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 03:45	75-00-3	
Chloroform	11.4	ug/L	4.0	0.45	1		12/18/19 03:45	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 03:45	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 03:45	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Sample: Marlow-GW-121119 Lab ID: 10502424001 Collected: 12/11/19 12:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 03:45	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 03:45	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 03:45	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 03:45	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 03:45	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 03:45	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 03:45	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 03:45	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 03:45	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 03:45	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 03:45	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 03:45	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 03:45	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 03:45	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/18/19 03:45	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 03:45	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 03:45	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 03:45	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 03:45	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 03:45	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 03:45	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 03:45	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 03:45	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 03:45	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 03:45	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 03:45	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:45	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:45	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 03:45	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 03:45	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 03:45	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 03:45	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 03:45	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 03:45	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	122	%	75-136		1		12/18/19 03:45	17060-07-0	
Toluene-d8 (S)	102	%	75-125		1		12/18/19 03:45	2037-26-5	
4-Bromofluorobenzene (S)	111	%	75-125		1		12/18/19 03:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Sample: Marlow2-GW-121119 **Lab ID: 10502424002** Collected: 12/11/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	1.0	0.20	1		12/18/19 04:09	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:09	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:09	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/18/19 04:09	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/18/19 04:09	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/18/19 04:09	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	1.0	0.16	1		12/18/19 04:09	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:09	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:09	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/18/19 04:09	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:09	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:09	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/18/19 04:09	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/18/19 04:09	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:09	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:09	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/18/19 04:09	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/18/19 04:09	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/18/19 04:09	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:09	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/18/19 04:09	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:09	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/18/19 04:09	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/18/19 04:09	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/18/19 04:09	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/18/19 04:09	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:09	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/18/19 04:09	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/18/19 04:09	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/18/19 04:09	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/18/19 04:09	67-64-1	
Acrolein	<3.2	ug/L	100	3.2	1		12/18/19 04:09	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/18/19 04:09	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:09	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/18/19 04:09	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/18/19 04:09	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/18/19 04:09	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/18/19 04:09	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/18/19 04:09	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/18/19 04:09	75-15-0	
Carbon tetrachloride	9.7	ug/L	0.50	0.19	1		12/18/19 04:09	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:09	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/18/19 04:09	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/18/19 04:09	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/18/19 04:09	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/18/19 04:09	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Sample: Marlow2-GW-121119 **Lab ID: 10502424002** Collected: 12/11/19 13:30 Received: 12/13/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/18/19 04:09	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/18/19 04:09	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/18/19 04:09	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/18/19 04:09	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/18/19 04:09	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/18/19 04:09	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:09	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/18/19 04:09	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/18/19 04:09	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/18/19 04:09	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/18/19 04:09	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/18/19 04:09	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/18/19 04:09	127-18-4	
Tetrahydrofuran	<2.2	ug/L	40.0	2.2	1		12/18/19 04:09	109-99-9	
Toluene	0.27J	ug/L	0.50	0.083	1		12/18/19 04:09	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/18/19 04:09	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/18/19 04:09	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/18/19 04:09	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/18/19 04:09	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/18/19 04:09	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	1.0	0.15	1		12/18/19 04:09	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/18/19 04:09	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/18/19 04:09	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/18/19 04:09	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/18/19 04:09	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/18/19 04:09	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:09	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:09	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/18/19 04:09	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/18/19 04:09	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/18/19 04:09	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/18/19 04:09	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/18/19 04:09	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/18/19 04:09	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	121	%	75-136		1		12/18/19 04:09	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/18/19 04:09	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1		12/18/19 04:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502424

QC Batch: 650497 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502424001, 10502424002

METHOD BLANK: 3497801 Matrix: Water
Associated Lab Samples: 10502424001, 10502424002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	1.0	0.20	12/17/19 22:58	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/17/19 22:58	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,1-Dichloroethene	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/17/19 22:58	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/17/19 22:58	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
1,2-Dichloroethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/17/19 22:58	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/17/19 22:58	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/17/19 22:58	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/17/19 22:58	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/17/19 22:58	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/17/19 22:58	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/17/19 22:58	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/17/19 22:58	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/17/19 22:58	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/17/19 22:58	
Acetone	ug/L	<9.2	20.0	9.2	12/17/19 22:58	
Acrolein	ug/L	<3.2	100	3.2	12/17/19 22:58	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/17/19 22:58	
Benzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/17/19 22:58	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/17/19 22:58	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/17/19 22:58	
Bromoform	ug/L	<0.80	4.0	0.80	12/17/19 22:58	
Bromomethane	ug/L	<1.8	4.0	1.8	12/17/19 22:58	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/17/19 22:58	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/17/19 22:58	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

METHOD BLANK: 3497801

Matrix: Water

Associated Lab Samples: 10502424001, 10502424002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Chloroethane	ug/L	<0.49	1.0	0.49	12/17/19 22:58	
Chloroform	ug/L	<0.45	4.0	0.45	12/17/19 22:58	
Chloromethane	ug/L	<0.48	4.0	0.48	12/17/19 22:58	
cis-1,2-Dichloroethene	ug/L	<0.15	1.0	0.15	12/17/19 22:58	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/17/19 22:58	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/17/19 22:58	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/17/19 22:58	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/17/19 22:58	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/17/19 22:58	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/17/19 22:58	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/17/19 22:58	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/17/19 22:58	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/17/19 22:58	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/17/19 22:58	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/17/19 22:58	
Naphthalene	ug/L	<0.48	1.0	0.48	12/17/19 22:58	
o-Xylene	ug/L	<0.16	0.50	0.16	12/17/19 22:58	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Styrene	ug/L	<0.19	0.50	0.19	12/17/19 22:58	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/17/19 22:58	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/17/19 22:58	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/17/19 22:58	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/17/19 22:58	
Tetrahydrofuran	ug/L	<2.2	40.0	2.2	12/17/19 22:58	
Toluene	ug/L	<0.083	0.50	0.083	12/17/19 22:58	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/17/19 22:58	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/17/19 22:58	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/17/19 22:58	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/17/19 22:58	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/17/19 22:58	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/17/19 22:58	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/17/19 22:58	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/17/19 22:58	
1,2-Dichloroethane-d4 (S)	%	117	75-136		12/17/19 22:58	
4-Bromofluorobenzene (S)	%	111	75-125		12/17/19 22:58	
Toluene-d8 (S)	%	102	75-125		12/17/19 22:58	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	100	68-141	
1,1,1-Trichloroethane	ug/L	20	21.2	106	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	26.5	133	69-132	L3
1,1-Dichloroethane	ug/L	20	23.7	118	73-125	
1,1-Dichloroethene	ug/L	20	22.0	110	71-126	
1,1-Dichloropropene	ug/L	20	21.3	106	73-126	
1,2,3-Trichlorobenzene	ug/L	20	18.0	90	72-126	
1,2,3-Trichloropropane	ug/L	20	20.6	103	75-126	
1,2,4-Trichlorobenzene	ug/L	20	17.0	85	71-134	
1,2,4-Trimethylbenzene	ug/L	20	20.1	101	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	45.3	91	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-129	
1,2-Dichlorobenzene	ug/L	20	20.1	101	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	41.0	102	74-125	N2
1,2-Dichloropropane	ug/L	20	21.7	109	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-127	
1,3-Dichlorobenzene	ug/L	20	20.7	104	75-126	
1,3-Dichloropropane	ug/L	20	21.0	105	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	422	106	72-129	
2,2,4-Trimethylpentane	ug/L	20	20.5	103	72-128	
2,2-Dichloropropane	ug/L	20	23.8	119	65-138	
2-Butanone (MEK)	ug/L	100	104	104	59-144	
2-Chlorotoluene	ug/L	20	20.9	105	75-127	
2-Hexanone	ug/L	100	99.0	99	73-134	
4-Chlorotoluene	ug/L	20	20.2	101	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.9	98	62-141	
Acetone	ug/L	100	110	110	60-137	
Acrolein	ug/L	200	306	153	60-141	CH,L3,SS
Acrylonitrile	ug/L	200	216	108	75-129	
Benzene	ug/L	20	21.0	105	73-125	
Bromobenzene	ug/L	20	20.4	102	73-125	
Bromochloromethane	ug/L	20	17.2	86	75-135	
Bromodichloromethane	ug/L	20	21.4	107	75-125	
Bromoform	ug/L	20	21.2	106	67-136	
Bromomethane	ug/L	20	21.8	109	30-150	SS
Carbon disulfide	ug/L	20	18.6	93	47-137	
Carbon tetrachloride	ug/L	20	20.5	102	75-125	
Chlorobenzene	ug/L	20	20.1	101	75-125	
Chloroethane	ug/L	20	22.3	111	63-136	
Chloroform	ug/L	20	18.9	95	73-128	
Chloromethane	ug/L	20	18.1	90	55-130	
cis-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502424

LABORATORY CONTROL SAMPLE: 3497802

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	21.2	106	75-125	
Dibromomethane	ug/L	20	17.7	88	75-125	
Dichlorodifluoromethane	ug/L	20	19.9	99	63-132	
Dichlorofluoromethane	ug/L	20	27.7	139	68-127	L3
Diisopropyl ether	ug/L	20	23.0	115	71-131	
Ethyl-tert-butyl ether	ug/L	20	21.2	106	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.5	87	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.1	96	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-126	
Methyl-tert-butyl ether	ug/L	20	23.4	117	75-125	
Methylene Chloride	ug/L	20	24.0	120	70-125	
n-Butylbenzene	ug/L	20	21.5	107	75-126	
n-Propylbenzene	ug/L	20	20.5	103	73-127	
Naphthalene	ug/L	20	19.1	96	63-128	
o-Xylene	ug/L	20	18.8	94	75-128	
p-Isopropyltoluene	ug/L	20	21.5	108	75-125	
sec-Butylbenzene	ug/L	20	21.0	105	75-126	
Styrene	ug/L	20	18.7	93	75-125	
tert-Amylmethyl ether	ug/L	20	20.9	104	75-125	
tert-Butyl Alcohol	ug/L	200	244	122	75-130	
tert-Butylbenzene	ug/L	20	20.1	101	75-131	
Tetrachloroethene	ug/L	20	18.8	94	74-125	
Tetrahydrofuran	ug/L	200	146	73	64-138	
Toluene	ug/L	20	19.4	97	74-125	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	68-128	
trans-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5	99	60-127	
Trichloroethene	ug/L	20	19.5	97	75-127	
Trichlorofluoromethane	ug/L	20	23.9	120	72-133	
Vinyl acetate	ug/L	20	20.8	104	61-129	
Vinyl chloride	ug/L	20	23.0	115	75-128	
Xylene (Total)	ug/L	60	57.4	96	75-125	
1,2-Dichloroethane-d4 (S)	%			111	75-136	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497803 3497804

Parameter	Units	10502151001		MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result						
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20.1	19.4	100	97	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.2	25.6	111	128	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	22.6	23.5	113	118	66-134	4	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	19.9	20.3	100	102	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3497803		3497804									
Parameter	Units	10502151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	29.0	28.1	145	141	65-146	3	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	24.7	24.4	123	122	68-132	1	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	23.8	23.3	119	116	66-139	2	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	21.6	24.5	108	122	67-134	12	30		
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	17.8	18.5	89	92	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20.7	21.6	104	108	69-128	4	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	16.9	17.9	84	90	65-140	6	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	19.9	20.1	100	101	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	47.4	48.4	95	97	54-138	2	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	18.9	19.5	94	98	68-125	4	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	19.7	20.3	98	101	74-136	3	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	19.7	19.5	99	98	68-125	1	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	44.1	44.3	110	111	71-126	0	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	21.1	21.3	106	106	67-125	1	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	19.8	20.3	99	102	68-137	3	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.7	20.4	99	102	75-131	3	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	20.2	20.6	101	103	71-125	2	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.4	19.6	97	98	74-126	1	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	353	390	88	98	68-125	10	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.5	20.3	103	102	54-129	1	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	28.2	29.1	141	145	69-139	3	30	M1	
2-Butanone (MEK)	ug/L	<0.99	100	100	99.7	107	100	107	54-144	7	30		
2-Chlorotoluene	ug/L	<0.16	20	20	20.6	21.0	103	105	75-134	2	30		
2-Hexanone	ug/L	<0.88	100	100	99.3	101	99	101	58-137	2	30		
4-Chlorotoluene	ug/L	<0.13	20	20	19.6	20.2	98	101	72-133	3	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	102	104	102	104	60-129	2	30		
Acetone	ug/L	<9.2	100	100	91.8	88.7	92	89	62-132	3	30		
Acrolein	ug/L	<3.2	200	200	389	379	195	190	30-150	3	30	CH, M0,SS	
Acrylonitrile	ug/L	<0.91	200	200	229	235	115	118	68-125	3	30		
Benzene	ug/L	<0.10	20	20	20.3	20.5	102	102	68-125	1	30		
Bromobenzene	ug/L	<0.21	20	20	19.3	20.2	96	101	73-126	5	30		
Bromochloromethane	ug/L	<0.27	20	20	19.5	19.8	98	99	66-143	1	30		
Bromodichloromethane	ug/L	<0.22	20	20	21.0	21.3	105	106	74-125	1	30		
Bromoform	ug/L	<0.80	20	20	20.9	21.6	104	108	64-134	3	30		
Bromomethane	ug/L	<1.8	20	20	28.0	27.8	140	139	30-150	1	30	SS	
Carbon disulfide	ug/L	<0.19	20	20	18.6	18.2	93	91	43-147	3	30		
Carbon tetrachloride	ug/L	<0.19	20	20	24.6	25.8	123	129	71-143	5	30		
Chlorobenzene	ug/L	<0.17	20	20	19.3	19.6	97	98	75-125	1	30		
Chloroethane	ug/L	<0.49	20	20	33.6	28.4	168	142	75-129	17	30	M1	
Chloroform	ug/L	<0.45	20	20	21.8	22.0	109	110	66-132	1	30		
Chloromethane	ug/L	<0.48	20	20	27.7	25.8	139	129	53-137	7	30	M1	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	20.9	22.1	105	110	67-133	5	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	19.0	18.8	95	94	66-125	1	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Parameter	Units	10502151001		3497803		3497804		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	20.4	21.1	102	105	62-132	3	30			
Dibromomethane	ug/L	<0.16	20	20	16.5	16.7	83	83	67-125	1	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	26.5	25.5	132	127	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	31.0	29.7	155	149	70-131	4	30	M0		
Diisopropyl ether	ug/L	<0.13	20	20	24.0	23.9	120	119	63-131	1	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	24.0	107	120	66-128	11	30			
Ethylbenzene	ug/L	<0.14	20	20	19.5	19.6	98	98	74-126	0	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	17.5	17.9	87	90	68-143	3	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	19.1	19.3	95	96	74-130	1	30			
m&p-Xylene	ug/L	<0.31	40	40	37.6	38.0	94	95	69-132	1	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	24.8	23.2	124	116	65-131	6	30			
Methylene Chloride	ug/L	<0.98	20	20	23.5	23.4	116	115	57-125	1	30			
n-Butylbenzene	ug/L	<0.24	20	20	21.3	21.8	107	109	71-131	2	30			
n-Propylbenzene	ug/L	<0.10	20	20	20.4	21.3	102	106	67-138	4	30			
Naphthalene	ug/L	<0.48	20	20	19.7	19.7	99	99	60-130	0	30			
o-Xylene	ug/L	<0.16	20	20	18.4	18.5	92	93	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	20.3	21.2	102	106	72-133	4	30			
sec-Butylbenzene	ug/L	<0.15	20	20	21.3	21.7	106	108	73-134	2	30			
Styrene	ug/L	<0.19	20	20	18.1	18.3	91	91	72-125	1	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	20.2	20.6	101	103	67-125	2	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	212	229	106	115	64-137	8	30			
tert-Butylbenzene	ug/L	<0.15	20	20	20.5	21.0	102	105	70-143	3	30			
Tetrachloroethene	ug/L	<0.17	20	20	18.4	19.0	92	95	72-129	3	30			
Tetrahydrofuran	ug/L	<2.2	200	200	141	174	70	87	66-128	21	30			
Toluene	ug/L	<0.083	20	20	18.8	19.2	94	96	73-125	2	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	23.1	22.2	116	111	62-137	4	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	20.7	21.0	104	105	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	49.8	52.0	100	104	45-128	4	30			
Trichloroethene	ug/L	<0.15	20	20	19.2	19.4	96	97	74-132	1	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	31.0	32.0	155	160	75-139	3	30	M1		
Vinyl acetate	ug/L	<1.1	20	20	19.8	22.4	99	112	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	32.3	31.9	161	159	68-146	1	30	M1		
Xylene (Total)	ug/L	<0.31	60	60	56.0	56.5	93	94	67-137	1	30			
1,2-Dichloroethane-d4 (S)	%						113	111	75-136					
4-Bromofluorobenzene (S)	%						101	106	75-125					
Toluene-d8 (S)	%						98	100	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
SS	This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502424

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502424001	Marlow-GW-121119	EPA 8260B	650497		
10502424002	Marlow2-GW-121119	EPA 8260B	650497		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: UPRR Jacobs		Report To: Mark Ochener, Brad Ostapkowicz		Attention: Anne Walsh	
Address: 998 W. Riverside Ave, Suite 500 Spokane, WA 99201		Copy To: Steve Demus, Jonathan Espinoza		Company: UPRR	
Email:		Copy To: David Hodson, UPRR-Sysdat@ghd.com		Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone: Fax:		Purchase Order #: PEDD# 1497		Face Quote: Contract# 9900758938	
Requested Due Date: 10 Day Standard		Project Name: Freeman WA-Cenex Harvest Lease		Face Project Manager: Jennifer Gross	
		Project #:		Face Profile #: 38447 / 4	

ITEM #	SAMPLE ID <small>One Character per box. (A-Z, 0-9, -,)</small> Sample IDs must be unique	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives					Analysis Test	Requested Analysis Filtered (Y/N)																						
			DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NiOH + Zn Acetate		Other	Low Level VOCs by 8760	60107/470 TAL Disolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate/300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethane RSK175	COD 410.4	Nitrate-Nitrite 353.2	4500 Total Phosphorus	6010 Total Iron	REGIONS									
1	Marlow-GW-12119	WTG	12/11	1230	-	3					X		X																						001
2	Marlow 2-GW-12119	↓	↓	↓	1330	↓	↓				X		X																					002	
3																																			
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			
11																																			
12																																			

WO# : 10502424

10502424

ADDITIONAL COMMENTS	RECORDED BY / APLICATION	DATE	TIME	ASSEMBLED BY / APLICATION	DATE	YIELD	SAMPLE CONSISTENCY
Short hold analyses are in bold	<i>JTS Gi Jacobs</i>	12/11/19	1600	<i>clj face</i>	12/13/19	900	96.0
*Field filtered by client							

SAMPLER NAME AND SIGNATURE			TEMP In C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Coded (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Jonathan Espinoza							
SIGNATURE of SAMPLER: <i>JTS Gi</i>		DATE Signed: 12/11/19					

Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502424**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 7475 9400 8430

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 2.6, 0.1, 1.2, 1.3 °C **Average Corrected Temp (no temp blank only):** See Exceptions 1 Container

Correction Factor: -0.1 **Cooler Temp Corrected w/temp blank:** _____ °C 2.6, 0.1 °C

USDA Regulated Soil: (N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 12/13/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (Internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: <u>VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PCAS</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes See Exception <input type="checkbox"/> Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
		Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____


CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JmaShari **Date:** 12/13/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 2
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No
			If yes, indicate who was contacted/date/time. If no, indicate reason why.
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.

No Temp Blank		
Read Temp	Corrected Temp	Average Temp
1.7	1.6	2.6
3.3	3.2	
2.2	2.1	
5.6	3.5	

Tracking Number/Temperature

Other Issues		
Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	



Document Name:
SCUR Exception Form – Coolers Above 6°C

Document Revised: 08Apr2019

Page 2 of 2

Document No.:
F-MN-C-298-Rev.02

Issuing Authority:
 Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No
			If yes, indicate who was contacted/date/time. If no, indicate reason why.

Multiple Cooler Project? Yes No
 If you answered yes, fill out information to the left.

No Temp Blank		
Read Temp	Corrected Temp	Average Temp
0.1	0.0	0.1
-0.1	-0.2	
0.2	0.1	
0.3	0.2	

Tracking Number/Temperature

Other Issues		
Issue Type:	Container Type	# of Containers
Sample ID	Type	Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

December 23, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

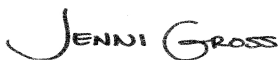
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502647

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #:74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502647001	Reed-GW-121319	Water	12/13/19 10:45	12/14/19 10:00

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502647001	Reed-GW-121319	EPA 8260B	DS2	83	PASI-M

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

General Information:

1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 651341

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3502945)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3502946)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3502947)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3502948)
 - 1,2-Dichloroethene (Total)
- Reed-GW-121319 (Lab ID: 10502647001)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 23, 2019

Analyte Comments:

QC Batch: 651341

- BLANK (Lab ID: 3502945)
 - Dichlorofluoromethane
- LCS (Lab ID: 3502946)
 - Dichlorofluoromethane
- MS (Lab ID: 3502947)
 - Dichlorofluoromethane
- MSD (Lab ID: 3502948)
 - Dichlorofluoromethane
- Reed-GW-121319 (Lab ID: 10502647001)
 - Dichlorofluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Sample: Reed-GW-121319 **Lab ID: 10502647001** Collected: 12/13/19 10:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/22/19 01:15	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	1.0	0.14	1		12/22/19 01:15	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 01:15	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	1.0	0.18	1		12/22/19 01:15	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 01:15	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/22/19 01:15	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/22/19 01:15	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 01:15	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	4.0	0.21	1		12/22/19 01:15	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/22/19 01:15	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 01:15	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/22/19 01:15	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/22/19 01:15	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/22/19 01:15	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 01:15	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/22/19 01:15	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/22/19 01:15	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/22/19 01:15	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/22/19 01:15	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/22/19 01:15	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/22/19 01:15	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 01:15	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/22/19 01:15	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/22/19 01:15	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/22/19 01:15	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/22/19 01:15	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/22/19 01:15	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/22/19 01:15	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/22/19 01:15	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/22/19 01:15	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/22/19 01:15	67-64-1	
Acrolein	<3.2	ug/L	10.0	3.2	1		12/22/19 01:15	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/22/19 01:15	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/22/19 01:15	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/22/19 01:15	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/22/19 01:15	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/22/19 01:15	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/22/19 01:15	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/22/19 01:15	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/22/19 01:15	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/22/19 01:15	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/22/19 01:15	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/22/19 01:15	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/22/19 01:15	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/22/19 01:15	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/22/19 01:15	124-48-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Sample: Reed-GW-121319 **Lab ID: 10502647001** Collected: 12/13/19 10:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/22/19 01:15	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/22/19 01:15	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/22/19 01:15	75-43-4	
Diisopropyl ether	<0.13	ug/L	1.0	0.13	1		12/22/19 01:15	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	0.50	0.18	1		12/22/19 01:15	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/22/19 01:15	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/22/19 01:15	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	0.50	0.18	1		12/22/19 01:15	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/22/19 01:15	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/22/19 01:15	75-09-2	
Naphthalene	<0.48	ug/L	4.0	0.48	1		12/22/19 01:15	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/22/19 01:15	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/22/19 01:15	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/22/19 01:15	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/22/19 01:15	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/22/19 01:15	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/22/19 01:15	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/22/19 01:15	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/22/19 01:15	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/22/19 01:15	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/22/19 01:15	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/22/19 01:15	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/22/19 01:15	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/22/19 01:15	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/22/19 01:15	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/22/19 01:15	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/22/19 01:15	99-87-6	
sec-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 01:15	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/22/19 01:15	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/22/19 01:15	75-65-0	
tert-Butylbenzene	<0.15	ug/L	0.50	0.15	1		12/22/19 01:15	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	1.0	0.12	1		12/22/19 01:15	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/22/19 01:15	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/22/19 01:15	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%	75-136		1		12/22/19 01:15	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1		12/22/19 01:15	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/22/19 01:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

QC Batch: 651341

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10502647001

METHOD BLANK: 3502945

Matrix: Water

Associated Lab Samples: 10502647001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,1,1-Trichloroethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1,2-Trichloroethane	ug/L	<0.18	1.0	0.18	12/21/19 20:18	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,1-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,3-Trichlorobenzene	ug/L	<0.21	4.0	0.21	12/21/19 20:18	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/21/19 20:18	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/21/19 20:18	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/21/19 20:18	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/21/19 20:18	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/21/19 20:18	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/21/19 20:18	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/21/19 20:18	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/21/19 20:18	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/21/19 20:18	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/21/19 20:18	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/21/19 20:18	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/21/19 20:18	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/21/19 20:18	
Acetone	ug/L	<9.2	20.0	9.2	12/21/19 20:18	
Acrolein	ug/L	<3.2	10.0	3.2	12/21/19 20:18	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/21/19 20:18	
Benzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/21/19 20:18	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/21/19 20:18	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/21/19 20:18	
Bromoform	ug/L	<0.80	4.0	0.80	12/21/19 20:18	
Bromomethane	ug/L	<1.8	4.0	1.8	12/21/19 20:18	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/21/19 20:18	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/21/19 20:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502647

METHOD BLANK: 3502945 Matrix: Water
Associated Lab Samples: 10502647001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Chloroethane	ug/L	<0.49	1.0	0.49	12/21/19 20:18	
Chloroform	ug/L	<0.45	4.0	0.45	12/21/19 20:18	
Chloromethane	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/21/19 20:18	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/21/19 20:18	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/21/19 20:18	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/21/19 20:18	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/21/19 20:18	
Diisopropyl ether	ug/L	<0.13	1.0	0.13	12/21/19 20:18	
Ethyl-tert-butyl ether	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/21/19 20:18	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Isopropylbenzene (Cumene)	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/21/19 20:18	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/21/19 20:18	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/21/19 20:18	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/21/19 20:18	
Naphthalene	ug/L	<0.48	4.0	0.48	12/21/19 20:18	
o-Xylene	ug/L	<0.16	0.50	0.16	12/21/19 20:18	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
sec-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Styrene	ug/L	<0.19	0.50	0.19	12/21/19 20:18	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/21/19 20:18	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/21/19 20:18	
tert-Butylbenzene	ug/L	<0.15	0.50	0.15	12/21/19 20:18	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/21/19 20:18	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/21/19 20:18	
Toluene	ug/L	<0.083	0.50	0.083	12/21/19 20:18	
trans-1,2-Dichloroethene	ug/L	<0.12	1.0	0.12	12/21/19 20:18	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/21/19 20:18	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/21/19 20:18	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/21/19 20:18	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/21/19 20:18	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/21/19 20:18	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/21/19 20:18	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/21/19 20:18	
1,2-Dichloroethane-d4 (S)	%	107	75-136		12/21/19 20:18	
4-Bromofluorobenzene (S)	%	104	75-125		12/21/19 20:18	
Toluene-d8 (S)	%	101	75-125		12/21/19 20:18	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.7	88	68-141	
1,1,1-Trichloroethane	ug/L	20	18.4	92	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	73-125	
1,1,2-Trichloroethane	ug/L	20	17.6	88	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.7	93	69-132	
1,1-Dichloroethane	ug/L	20	17.9	89	73-125	
1,1-Dichloroethene	ug/L	20	17.6	88	71-126	
1,1-Dichloropropene	ug/L	20	19.1	96	73-126	
1,2,3-Trichlorobenzene	ug/L	20	16.0	80	72-126	
1,2,3-Trichloropropane	ug/L	20	18.6	93	75-126	
1,2,4-Trichlorobenzene	ug/L	20	18.0	90	71-134	
1,2,4-Trimethylbenzene	ug/L	20	19.4	97	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	41.4	83	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	18.4	92	75-129	
1,2-Dichlorobenzene	ug/L	20	18.1	91	75-129	
1,2-Dichloroethane	ug/L	20	18.2	91	75-125	
1,2-Dichloroethene (Total)	ug/L	40	34.8	87	74-125	N2
1,2-Dichloropropane	ug/L	20	17.0	85	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.6	98	75-127	
1,3-Dichlorobenzene	ug/L	20	18.1	90	75-126	
1,3-Dichloropropane	ug/L	20	18.7	94	75-125	
1,4-Dichlorobenzene	ug/L	20	18.4	92	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	362	90	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.5	97	72-128	
2,2-Dichloropropane	ug/L	20	18.1	90	65-138	
2-Butanone (MEK)	ug/L	100	84.0	84	59-144	
2-Chlorotoluene	ug/L	20	19.0	95	75-127	
2-Hexanone	ug/L	100	90.1	90	73-134	
4-Chlorotoluene	ug/L	20	18.4	92	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	89.6	90	62-141	
Acetone	ug/L	100	85.5	86	60-137	
Acrolein	ug/L	200	192	96	60-141	
Acrylonitrile	ug/L	200	178	89	75-129	
Benzene	ug/L	20	17.7	88	73-125	
Bromobenzene	ug/L	20	18.0	90	73-125	
Bromochloromethane	ug/L	20	16.8	84	75-135	
Bromodichloromethane	ug/L	20	17.2	86	75-125	
Bromoform	ug/L	20	16.4	82	67-136	
Bromomethane	ug/L	20	14.2	71	30-150	
Carbon disulfide	ug/L	20	16.9	85	47-137	
Carbon tetrachloride	ug/L	20	17.7	89	75-125	
Chlorobenzene	ug/L	20	18.6	93	75-125	
Chloroethane	ug/L	20	23.0	115	63-136	
Chloroform	ug/L	20	18.8	94	73-128	
Chloromethane	ug/L	20	16.8	84	55-130	
cis-1,2-Dichloroethene	ug/L	20	17.5	88	75-125	
cis-1,3-Dichloropropene	ug/L	20	17.3	86	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

LABORATORY CONTROL SAMPLE: 3502946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	17.8	89	75-125	
Dibromomethane	ug/L	20	16.8	84	75-125	
Dichlorodifluoromethane	ug/L	20	19.6	98	63-132	
Dichlorofluoromethane	ug/L	20	20.8	104	68-127	
Diisopropyl ether	ug/L	20	17.2	86	71-131	
Ethyl-tert-butyl ether	ug/L	20	17.7	88	75-125	
Ethylbenzene	ug/L	20	18.6	93	75-125	
Hexachloro-1,3-butadiene	ug/L	20	20.3	101	72-134	
Isopropylbenzene (Cumene)	ug/L	20	19.5	97	75-125	
m&p-Xylene	ug/L	40	37.3	93	75-126	
Methyl-tert-butyl ether	ug/L	20	17.1	85	75-125	
Methylene Chloride	ug/L	20	17.7	88	70-125	
n-Butylbenzene	ug/L	20	19.6	98	75-126	
n-Propylbenzene	ug/L	20	19.5	97	73-127	
Naphthalene	ug/L	20	15.7	79	63-128	
o-Xylene	ug/L	20	18.5	92	75-128	
p-Isopropyltoluene	ug/L	20	18.0	90	75-125	
sec-Butylbenzene	ug/L	20	19.9	99	75-126	
Styrene	ug/L	20	18.1	90	75-125	
tert-Amylmethyl ether	ug/L	20	18.1	90	75-125	
tert-Butyl Alcohol	ug/L	200	182	91	75-130	
tert-Butylbenzene	ug/L	20	18.3	91	75-131	
Tetrachloroethene	ug/L	20	18.6	93	74-125	
Tetrahydrofuran	ug/L	200	172	86	64-138	
Toluene	ug/L	20	17.7	89	74-125	
trans-1,2-Dichloroethene	ug/L	20	17.3	87	68-128	
trans-1,3-Dichloropropene	ug/L	20	17.7	89	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	38.4	77	60-127	
Trichloroethene	ug/L	20	16.4	82	75-127	
Trichlorofluoromethane	ug/L	20	19.9	99	72-133	
Vinyl acetate	ug/L	20	18.0	90	61-129	
Vinyl chloride	ug/L	20	16.9	85	75-128	
Xylene (Total)	ug/L	60	55.7	93	75-125	
1,2-Dichloroethane-d4 (S)	%			107	75-136	
4-Bromofluorobenzene (S)	%			104	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947 3502948

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503564007	Result	Spike Conc.	Spike Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	18.1	18.3	90	92	75-140	1	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	19.9	19.8	99	99	74-136	0	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	19.7	19.9	98	99	66-134	1	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	17.3	17.6	86	88	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947		3502948									
Parameter	Units	10503564007	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20.6	20.8	103	104	65-146	1	30
1,1-Dichloroethane	ug/L	<0.17	20	20	18.2	18.4	91	92	68-132	1	30
1,1-Dichloroethene	ug/L	<0.16	20	20	18.7	18.2	93	91	66-139	2	30
1,1-Dichloropropene	ug/L	<0.20	20	20	20.3	19.9	101	100	67-134	2	30
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	20.0	22.4	100	112	67-129	12	30
1,2,3-Trichloropropane	ug/L	<0.26	20	20	19.2	19.4	96	97	69-128	1	30
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	20.1	22.9	100	114	65-140	13	30
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	20.2	20.7	101	104	71-133	3	30
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	44.2	44.9	88	90	54-138	1	30
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	17.9	18.0	90	90	68-125	0	30
1,2-Dichlorobenzene	ug/L	<0.14	20	20	18.8	19.2	94	96	74-136	2	30
1,2-Dichloroethane	ug/L	<0.22	20	20	18.2	18.1	91	91	68-125	0	30
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	34.2	34.4	85	86	71-126	1	30 N2
1,2-Dichloropropane	ug/L	<0.16	20	20	17.5	16.9	87	85	67-125	3	30
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20.3	21.3	101	106	68-137	5	30
1,3-Dichlorobenzene	ug/L	<0.16	20	20	19.1	19.3	95	96	75-131	1	30
1,3-Dichloropropane	ug/L	<0.070	20	20	18.7	18.6	93	93	71-125	1	30
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.3	19.3	97	96	74-126	0	30
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	349	342	87	86	68-125	2	30
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20.4	20.7	102	104	54-129	2	30
2,2-Dichloropropane	ug/L	<0.17	20	20	19.1	19.1	95	96	69-139	0	30
2-Butanone (MEK)	ug/L	<0.99	100	100	79.3	77.8	79	78	54-144	2	30
2-Chlorotoluene	ug/L	<0.16	20	20	19.4	19.9	97	99	75-134	2	30
2-Hexanone	ug/L	<0.88	100	100	89.7	87.6	90	88	58-137	2	30
4-Chlorotoluene	ug/L	<0.13	20	20	19.3	19.4	96	97	72-133	1	30
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	90.1	89.0	90	89	60-129	1	30
Acetone	ug/L	<9.2	100	100	73.9	72.8	74	73	62-132	2	30
Acrolein	ug/L	<3.2	200	200	217	210	108	105	30-150	3	30
Acrylonitrile	ug/L	<0.91	200	200	178	176	89	88	68-125	1	30
Benzene	ug/L	<0.10	20	20	17.9	18.0	90	90	68-125	0	30
Bromobenzene	ug/L	<0.21	20	20	18.2	18.6	91	93	73-126	2	30
Bromochloromethane	ug/L	<0.27	20	20	16.9	16.7	85	83	66-143	1	30
Bromodichloromethane	ug/L	<0.22	20	20	17.8	17.6	89	88	74-125	1	30
Bromoform	ug/L	<0.80	20	20	16.8	16.4	84	82	64-134	2	30
Bromomethane	ug/L	<1.8	20	20	15.7	16.8	78	84	30-150	7	30
Carbon disulfide	ug/L	<0.19	20	20	16.6	15.6	83	78	43-147	6	30
Carbon tetrachloride	ug/L	<0.19	20	20	19.3	18.8	96	94	71-143	2	30
Chlorobenzene	ug/L	<0.17	20	20	19.0	18.9	95	94	75-125	1	30
Chloroethane	ug/L	<0.49	20	20	21.9	22.4	110	112	75-129	2	30
Chloroform	ug/L	<0.45	20	20	18.3	18.7	92	93	66-132	2	30
Chloromethane	ug/L	<0.48	20	20	16.2	15.8	81	79	53-137	2	30
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	17.4	17.8	87	89	67-133	2	30
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	18.0	18.1	90	90	66-125	0	30

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502947		3502948		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10503564007 Result	MS Spike Conc.	MSD Spike Conc.									
Dibromochloromethane	ug/L	<0.12	20	20	17.9	18.0	90	90	62-132	1	30		
Dibromomethane	ug/L	<0.16	20	20	17.2	17.0	86	85	67-125	2	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	18.9	18.8	94	94	71-142	1	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	19.5	19.6	97	98	70-131	1	30		
Diisopropyl ether	ug/L	<0.13	20	20	17.0	17.2	85	86	63-131	1	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	17.4	17.9	87	89	66-128	3	30		
Ethylbenzene	ug/L	<0.14	20	20	19.0	18.9	95	94	74-126	0	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	24.9	26.2	124	131	68-143	5	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	20.8	21.3	104	107	74-130	2	30		
m&p-Xylene	ug/L	<0.31	40	40	38.1	38.9	95	97	69-132	2	30		
Methyl-tert-butyl ether	ug/L	<0.16	20	20	16.8	17.0	84	85	65-131	1	30		
Methylene Chloride	ug/L	<0.98	20	20	17.2	17.6	86	88	57-125	3	30		
n-Butylbenzene	ug/L	<0.24	20	20	22.0	23.4	110	117	71-131	7	30		
n-Propylbenzene	ug/L	<0.10	20	20	20.9	21.6	105	108	67-138	3	30		
Naphthalene	ug/L	<0.48	20	20	19.1	20.6	95	103	60-130	8	30		
o-Xylene	ug/L	<0.16	20	20	18.7	19.1	93	95	69-131	2	30		
p-Isopropyltoluene	ug/L	<0.15	20	20	19.3	20.8	96	104	72-133	7	30		
sec-Butylbenzene	ug/L	<0.15	20	20	21.7	23.1	108	116	73-134	7	30		
Styrene	ug/L	<0.19	20	20	18.6	18.6	93	93	72-125	0	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	17.9	18.1	89	90	67-125	1	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	177	175	89	87	64-137	1	30		
tert-Butylbenzene	ug/L	<0.15	20	20	19.5	20.7	98	104	70-143	6	30		
Tetrachloroethene	ug/L	<0.17	20	20	20.2	20.2	101	101	72-129	0	30		
Tetrahydrofuran	ug/L	<2.2	200	200	162	165	81	82	66-128	2	30		
Toluene	ug/L	<0.083	20	20	18.4	18.1	92	90	73-125	1	30		
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	16.8	16.7	84	83	62-137	1	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	17.9	18.2	90	91	61-136	2	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	38.7	38.2	77	76	45-128	1	30		
Trichloroethene	ug/L	<0.15	20	20	17.3	17.2	87	86	74-132	1	30		
Trichlorofluoromethane	ug/L	<0.23	20	20	19.8	19.3	99	96	75-139	3	30		
Vinyl acetate	ug/L	<1.1	20	20	17.0	17.0	85	85	51-135	0	30		
Vinyl chloride	ug/L	<0.092	20	20	16.3	16.1	82	80	68-146	2	30		
Xylene (Total)	ug/L	<0.31	60	60	56.8	58.0	95	97	67-137	2	30		
1,2-Dichloroethane-d4 (S)	%						107	107	75-136				
4-Bromofluorobenzene (S)	%						104	103	75-125				
Toluene-d8 (S)	%						104	104	75-125				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502647

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502647001	Reed-GW-121319	EPA 8260B	651341		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502647**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 1320 75192 45292/4506

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.9, 0.5°C **Average Corrected Temp (no temp blank only):** See Exceptions 1 Container

Correction Factor: - **Cooler Temp Corrected w/temp blank:** 0.9, 0.4°C

USDA Regulated Soil: N/A, water sample/Other: _____ **Date/Initials of Person Examining Contents:** 8/12/14 JMG

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No JMG 121619	
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: See Exception <input type="checkbox"/>
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A JMG 121619	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	Positive for Res. <input type="checkbox"/> Yes See Exception Chlorine? <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. See Exception <input type="checkbox"/>
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>237173</u>

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: JENNI GROSS **Date:** 12/16/19

Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

December 30, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

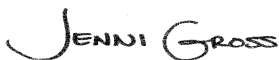
RE: Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

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SAMPLE SUMMARY

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502648001	MW1D-GW-121319	Water	12/13/19 09:00	12/14/19 10:00
10502648002	MW2D-GW-121319	Water	12/13/19 10:30	12/14/19 10:00
10502648003	Reed-GW-121319	Water	12/13/19 10:45	12/14/19 10:00
10502648004	FD4-GW-121319	Water	12/13/19 10:50	12/14/19 10:00
10502648005	MW9U-GW-121319	Water	12/13/19 11:45	12/14/19 10:00
10502648006	MW9D-GW-121319	Water	12/13/19 12:30	12/14/19 10:00
10502648007	TB1-121319	Water	12/13/19 07:00	12/14/19 10:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502648001	MW1D-GW-121319	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502648002	MW2D-GW-121319	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502648003	Reed-GW-121319	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		10502648004	FD4-GW-121319	RSK-175	DAH
EPA 6010D	IP			16	PASI-M
EPA 7470A	LMW			1	PASI-M
EPA 8260B	DS2			83	PASI-M
SM 2320B	SH4			1	PASI-M

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SAMPLE ANALYTE COUNT

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502648005	MW9U-GW-121319	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502648006	MW9D-GW-121319	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502648007	TB1-121319	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10502648001	MW1D-GW-121319					
EPA 6010D	Barium, Dissolved	80.3	ug/L	10.0	12/22/19 12:17	
EPA 6010D	Copper, Dissolved	1.3J	ug/L	10.0	12/22/19 12:17	
EPA 6010D	Molybdenum, Dissolved	7.1J	ug/L	15.0	12/22/19 12:17	
EPA 6010D	Vanadium, Dissolved	0.86J	ug/L	15.0	12/22/19 12:17	
SM 2320B	Alkalinity, Total as CaCO3	193	mg/L	5.0	12/19/19 16:06	
SM 2540C	Total Dissolved Solids	227	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	2.4	mg/L	1.2	12/14/19 21:59	
EPA 300.0	Nitrate as N	0.18	mg/L	0.10	12/14/19 21:59	
EPA 300.0	Sulfate	5.1	mg/L	1.2	12/14/19 21:59	
EPA 353.2	Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	12/19/19 14:13	
EPA 410.4	Chemical Oxygen Demand	18.3J	mg/L	50.0	12/20/19 10:21	
SM 5310C	Total Organic Carbon	0.79J	mg/L	1.0	12/19/19 00:58	
10502648002	MW2D-GW-121319					
RSK-175	Methane	22.0	ug/L	10.0	12/19/19 14:19	
EPA 6010D	Barium, Dissolved	83.9	ug/L	10.0	12/22/19 12:20	
EPA 6010D	Cobalt, Dissolved	0.96J	ug/L	10.0	12/22/19 12:20	
EPA 6010D	Molybdenum, Dissolved	9.1J	ug/L	15.0	12/22/19 12:20	
EPA 6010D	Vanadium, Dissolved	0.65J	ug/L	15.0	12/22/19 12:20	
SM 2320B	Alkalinity, Total as CaCO3	163	mg/L	5.0	12/19/19 16:12	
SM 2540C	Total Dissolved Solids	211	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	2.0	mg/L	1.2	12/14/19 22:18	
EPA 300.0	Nitrate as N	0.059J	mg/L	0.10	12/14/19 22:18	
EPA 300.0	Sulfate	3.3	mg/L	1.2	12/14/19 22:18	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.018J	mg/L	0.10	12/19/19 14:14	
SM 5310C	Total Organic Carbon	1.9	mg/L	1.0	12/19/19 01:12	
10502648003	Reed-GW-121319					
EPA 6010D	Barium, Dissolved	47.4	ug/L	10.0	12/22/19 12:23	
EPA 6010D	Copper, Dissolved	2.8J	ug/L	10.0	12/22/19 12:23	
EPA 6010D	Vanadium, Dissolved	24.4	ug/L	15.0	12/22/19 12:23	
EPA 6010D	Zinc, Dissolved	28.3	ug/L	20.0	12/22/19 12:23	
SM 2320B	Alkalinity, Total as CaCO3	139	mg/L	5.0	12/19/19 16:18	
SM 2540C	Total Dissolved Solids	198	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	1.7	mg/L	1.2	12/14/19 22:37	
EPA 300.0	Nitrate as N	0.37	mg/L	0.10	12/14/19 22:37	
EPA 300.0	Sulfate	8.8	mg/L	1.2	12/14/19 22:37	
EPA 353.2	Nitrogen, NO2 plus NO3	0.36	mg/L	0.10	12/19/19 14:17	
10502648004	FD4-GW-121319					
EPA 6010D	Barium, Dissolved	47.5	ug/L	10.0	12/22/19 12:26	
EPA 6010D	Copper, Dissolved	3.2J	ug/L	10.0	12/22/19 12:26	
EPA 6010D	Vanadium, Dissolved	24.2	ug/L	15.0	12/22/19 12:26	
EPA 6010D	Zinc, Dissolved	29.8	ug/L	20.0	12/22/19 12:26	
SM 2320B	Alkalinity, Total as CaCO3	140	mg/L	5.0	12/19/19 16:24	
SM 2540C	Total Dissolved Solids	200	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	1.7	mg/L	1.2	12/14/19 22:56	
EPA 300.0	Nitrate as N	0.37	mg/L	0.10	12/14/19 22:56	
EPA 300.0	Sulfate	8.7	mg/L	1.2	12/14/19 22:56	

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SUMMARY OF DETECTION

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502648004	FD4-GW-121319					
EPA 353.2	Nitrogen, NO2 plus NO3	0.36	mg/L	0.10	12/19/19 14:18	
10502648005	MW9U-GW-121319					
EPA 6010D	Barium, Dissolved	22.6	ug/L	10.0	12/22/19 12:29	
EPA 6010D	Chromium, Dissolved	3.6J	ug/L	10.0	12/22/19 12:29	
EPA 6010D	Copper, Dissolved	5.3J	ug/L	10.0	12/22/19 12:29	
EPA 6010D	Lead, Dissolved	4.1J	ug/L	10.0	12/22/19 12:29	
EPA 6010D	Nickel, Dissolved	1.6J	ug/L	20.0	12/22/19 12:29	
EPA 6010D	Vanadium, Dissolved	6.7J	ug/L	15.0	12/22/19 12:29	
EPA 6010D	Zinc, Dissolved	8.0J	ug/L	20.0	12/22/19 12:29	
EPA 8260B	Carbon tetrachloride	153	ug/L	0.50	12/25/19 00:58	
EPA 8260B	Chloroform	3.6J	ug/L	4.0	12/25/19 00:58	
SM 2320B	Alkalinity, Total as CaCO3	97.1	mg/L	5.0	12/19/19 16:29	
SM 2540C	Total Dissolved Solids	320	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	86.0	mg/L	1.2	12/14/19 23:16	
EPA 300.0	Nitrate as N	4.3	mg/L	0.10	12/14/19 23:16	
EPA 300.0	Sulfate	12.4	mg/L	1.2	12/14/19 23:16	
EPA 353.2	Nitrogen, NO2 plus NO3	3.7	mg/L	0.50	12/19/19 16:32	FS
EPA 410.4	Chemical Oxygen Demand	31.5J	mg/L	50.0	12/20/19 10:22	
SM 5310C	Total Organic Carbon	5.4	mg/L	1.0	12/19/19 01:51	
10502648006	MW9D-GW-121319					
EPA 6010D	Arsenic, Dissolved	4.8J	ug/L	20.0	12/22/19 12:32	
EPA 6010D	Barium, Dissolved	29.8	ug/L	10.0	12/22/19 12:32	
EPA 6010D	Copper, Dissolved	4.6J	ug/L	10.0	12/22/19 12:32	
EPA 6010D	Vanadium, Dissolved	7.9J	ug/L	15.0	12/22/19 12:32	
EPA 8260B	Carbon tetrachloride	114	ug/L	0.50	12/25/19 01:22	
EPA 8260B	Chloroform	5.5	ug/L	4.0	12/25/19 01:22	
SM 2320B	Alkalinity, Total as CaCO3	171	mg/L	5.0	12/20/19 13:20	
SM 2540C	Total Dissolved Solids	303	mg/L	10.0	12/19/19 17:30	
EPA 300.0	Chloride	15.0	mg/L	1.2	12/14/19 23:35	
EPA 300.0	Nitrate as N	4.0	mg/L	0.10	12/14/19 23:35	
EPA 300.0	Sulfate	37.3	mg/L	1.2	12/14/19 23:35	
EPA 353.2	Nitrogen, NO2 plus NO3	3.3	mg/L	0.50	12/19/19 16:35	FS
SM 5310C	Total Organic Carbon	1.1	mg/L	1.0	12/19/19 02:04	

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 651652

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3504386)
 - Acrolein
- MS (Lab ID: 3504387)
 - Acrolein
- MSD (Lab ID: 3504388)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3504386)
 - 1,1,2-Trichlorotrifluoroethane
 - 2-Chlorotoluene
 - Acrolein
 - m&p-Xylene
 - n-Butylbenzene
 - n-Propylbenzene
 - p-Isopropyltoluene

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- sec-Butylbenzene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651652

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502648001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3504387)
 - 1,1-Dichloropropene

R1: RPD value was outside control limits.

- MSD (Lab ID: 3504388)
 - 2-Butanone (MEK)

Additional Comments:

Analyte Comments:

QC Batch: 651652

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3504385)
 - 1,2-Dichloroethene (Total)
- FD4-GW-121319 (Lab ID: 10502648004)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3504386)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3504387)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3504388)
 - 1,2-Dichloroethene (Total)
- MW1D-GW-121319 (Lab ID: 10502648001)
 - 1,2-Dichloroethene (Total)
- MW2D-GW-121319 (Lab ID: 10502648002)
 - 1,2-Dichloroethene (Total)
- MW9D-GW-121319 (Lab ID: 10502648006)
 - 1,2-Dichloroethene (Total)
- MW9U-GW-121319 (Lab ID: 10502648005)
 - 1,2-Dichloroethene (Total)
- TB1-121319 (Lab ID: 10502648007)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 30, 2019

Analyte Comments:

QC Batch: 651652

- BLANK (Lab ID: 3504385)
 - Dichlorofluoromethane
- FD4-GW-121319 (Lab ID: 10502648004)
 - Dichlorofluoromethane
- LCS (Lab ID: 3504386)
 - Dichlorofluoromethane
- MS (Lab ID: 3504387)
 - Dichlorofluoromethane
- MSD (Lab ID: 3504388)
 - Dichlorofluoromethane
- MW1D-GW-121319 (Lab ID: 10502648001)
 - Dichlorofluoromethane
- MW2D-GW-121319 (Lab ID: 10502648002)
 - Dichlorofluoromethane
- MW9D-GW-121319 (Lab ID: 10502648006)
 - Dichlorofluoromethane
- MW9U-GW-121319 (Lab ID: 10502648005)
 - Dichlorofluoromethane
- TB1-121319 (Lab ID: 10502648007)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650776

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502418005,10502671003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3500420)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3500421)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 169198

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20134886001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 767795)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 649885

B: Analyte was detected in the associated method blank.

- BLANK for HBN 649885 [WETA/419 (Lab ID: 3494763)]
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 649885

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502418001,10502418002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3494767)
 - Chloride
 - Nitrate as N
- MSD (Lab ID: 3494768)
 - Chloride
 - Nitrate as N

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 30, 2019

General Information:

6 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW1D-GW-121319 **Lab ID:** 10502648001 Collected: 12/13/19 09:00 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:16	12/19/19 14:16	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:16	12/19/19 14:16	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:16	12/19/19 14:16	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:17	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:17	7440-38-2	
Barium, Dissolved	80.3	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:17	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:17	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:17	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:17	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:17	7440-48-4	
Copper, Dissolved	1.3J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:17	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:17	7439-92-1	
Molybdenum, Dissolved	7.1J	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:17	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:17	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:17	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:17	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:17	7440-28-0	
Vanadium, Dissolved	0.86J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:17	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:17	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:04	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/24/19 23:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/24/19 23:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 23:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/24/19 23:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 23:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 23:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/24/19 23:46	563-58-6	M1
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 23:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/24/19 23:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/24/19 23:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/24/19 23:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 23:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 23:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/24/19 23:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/24/19 23:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/24/19 23:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:46	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW1D-GW-121319 **Lab ID:** 10502648001 Collected: 12/13/19 09:00 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/24/19 23:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/24/19 23:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/24/19 23:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/24/19 23:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/24/19 23:46	78-93-3	R1
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/24/19 23:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/24/19 23:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/24/19 23:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/24/19 23:46	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/24/19 23:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/24/19 23:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/24/19 23:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 23:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/24/19 23:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/24/19 23:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/24/19 23:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/24/19 23:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/24/19 23:46	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/24/19 23:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/24/19 23:46	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/24/19 23:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/24/19 23:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/24/19 23:46	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/24/19 23:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/24/19 23:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/24/19 23:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/24/19 23:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/24/19 23:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 23:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/24/19 23:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/24/19 23:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/24/19 23:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/24/19 23:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/24/19 23:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/24/19 23:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/24/19 23:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/24/19 23:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/24/19 23:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/24/19 23:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/24/19 23:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/24/19 23:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/24/19 23:46	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Sample: MW1D-GW-121319 **Lab ID: 10502648001** Collected: 12/13/19 09:00 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/24/19 23:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/24/19 23:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/24/19 23:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/24/19 23:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/24/19 23:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 23:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/24/19 23:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/24/19 23:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 23:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/24/19 23:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/24/19 23:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/24/19 23:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	75-136		1		12/24/19 23:46	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/24/19 23:46	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/24/19 23:46	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	193	mg/L	5.0	2.0	1		12/19/19 16:06		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	227	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 13:52	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.4	mg/L	1.2	0.12	1		12/14/19 21:59	16887-00-6	
Nitrate as N	0.18	mg/L	0.10	0.012	1		12/14/19 21:59	14797-55-8	
Sulfate	5.1	mg/L	1.2	0.28	1		12/14/19 21:59	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	0.018	1		12/19/19 14:13		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	18.3J	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:21		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.79J	mg/L	1.0	0.39	1		12/19/19 00:58	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW2D-GW-121319 **Lab ID:** 10502648002 Collected: 12/13/19 10:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	22.0	ug/L	10.0	2.91	1	12/19/19 14:19	12/19/19 14:19	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:19	12/19/19 14:19	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:19	12/19/19 14:19	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:20	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:20	7440-38-2	
Barium, Dissolved	83.9	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:20	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:20	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:20	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:20	7440-47-3	
Cobalt, Dissolved	0.96J	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:20	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:20	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:20	7439-92-1	
Molybdenum, Dissolved	9.1J	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:20	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:20	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:20	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:20	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:20	7440-28-0	
Vanadium, Dissolved	0.65J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:20	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:20	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:12	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 00:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 00:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 00:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 00:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 00:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 00:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 00:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 00:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 00:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:10	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW2D-GW-121319 **Lab ID: 10502648002** Collected: 12/13/19 10:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 00:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 00:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 00:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 00:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 00:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 00:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 00:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 00:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 00:10	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 00:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 00:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 00:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 00:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 00:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 00:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 00:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 00:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 00:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 00:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 00:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 00:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 00:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 00:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 00:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 00:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 00:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 00:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 00:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 00:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 00:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 00:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 00:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 00:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 00:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 00:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 00:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 00:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 00:10	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW2D-GW-121319 **Lab ID:** 10502648002 Collected: 12/13/19 10:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 00:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 00:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 00:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 00:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 00:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	75-136		1		12/25/19 00:10	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/25/19 00:10	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 00:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	163	mg/L	5.0	2.0	1		12/19/19 16:12		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	211	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 13:52	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.0	mg/L	1.2	0.12	1		12/14/19 22:18	16887-00-6	
Nitrate as N	0.059J	mg/L	0.10	0.012	1		12/14/19 22:18	14797-55-8	
Sulfate	3.3	mg/L	1.2	0.28	1		12/14/19 22:18	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.018J	mg/L	0.10	0.018	1		12/19/19 14:14		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:22		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.9	mg/L	1.0	0.39	1		12/19/19 01:12	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: Reed-GW-121319 **Lab ID: 10502648003** Collected: 12/13/19 10:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:22	12/19/19 14:22	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:22	12/19/19 14:22	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:22	12/19/19 14:22	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:23	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:23	7440-38-2	
Barium, Dissolved	47.4	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:23	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:23	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:23	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:23	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:23	7440-48-4	
Copper, Dissolved	2.8J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:23	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:23	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:23	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:23	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:23	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:23	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:23	7440-28-0	
Vanadium, Dissolved	24.4	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:23	7440-62-2	
Zinc, Dissolved	28.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:23	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:14	7439-97-6	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	139	mg/L	5.0	2.0	1		12/19/19 16:18		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	198	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 17:03	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.7	mg/L	1.2	0.12	1		12/14/19 22:37	16887-00-6	
Nitrate as N	0.37	mg/L	0.10	0.012	1		12/14/19 22:37	14797-55-8	
Sulfate	8.8	mg/L	1.2	0.28	1		12/14/19 22:37	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.36	mg/L	0.10	0.018	1		12/19/19 14:17		
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:22		

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: Reed-GW-121319 **Lab ID: 10502648003** Collected: 12/13/19 10:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/19/19 01:25	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: FD4-GW-121319 **Lab ID: 10502648004** Collected: 12/13/19 10:50 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:25	12/19/19 14:25	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:25	12/19/19 14:25	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:25	12/19/19 14:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:26	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:26	7440-38-2	
Barium, Dissolved	47.5	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:26	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:26	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:26	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:26	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:26	7440-48-4	
Copper, Dissolved	3.2J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:26	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:26	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:26	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:26	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:26	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:26	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:26	7440-28-0	
Vanadium, Dissolved	24.2	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:26	7440-62-2	
Zinc, Dissolved	29.8	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:26	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:16	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 00:34	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 00:34	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:34	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 00:34	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:34	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:34	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:34	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 00:34	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:34	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 00:34	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:34	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:34	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 00:34	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 00:34	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:34	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:34	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 00:34	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 00:34	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:34	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:34	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: FD4-GW-121319 **Lab ID: 10502648004** Collected: 12/13/19 10:50 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 00:34	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:34	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 00:34	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 00:34	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 00:34	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 00:34	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:34	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 00:34	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 00:34	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 00:34	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 00:34	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 00:34	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 00:34	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:34	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:34	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 00:34	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 00:34	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 00:34	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 00:34	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 00:34	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 00:34	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:34	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 00:34	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 00:34	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 00:34	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 00:34	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 00:34	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 00:34	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 00:34	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 00:34	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 00:34	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:34	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:34	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 00:34	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 00:34	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 00:34	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 00:34	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 00:34	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:34	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 00:34	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 00:34	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 00:34	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 00:34	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 00:34	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 00:34	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 00:34	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Sample: FD4-GW-121319 **Lab ID: 10502648004** Collected: 12/13/19 10:50 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:34	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:34	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:34	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 00:34	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:34	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:34	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:34	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:34	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 00:34	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 00:34	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:34	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:34	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 00:34	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 00:34	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	117	%	75-136		1		12/25/19 00:34	17060-07-0	
Toluene-d8 (S)	108	%	75-125		1		12/25/19 00:34	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/25/19 00:34	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	140	mg/L	5.0	2.0	1		12/19/19 16:24		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	200	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 17:03	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.7	mg/L	1.2	0.12	1		12/14/19 22:56	16887-00-6	
Nitrate as N	0.37	mg/L	0.10	0.012	1		12/14/19 22:56	14797-55-8	
Sulfate	8.7	mg/L	1.2	0.28	1		12/14/19 22:56	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.36	mg/L	0.10	0.018	1		12/19/19 14:18		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:22		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/19/19 01:38	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW9U-GW-121319 **Lab ID: 10502648005** Collected: 12/13/19 11:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:31	12/19/19 14:31	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:31	12/19/19 14:31	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:31	12/19/19 14:31	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:29	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:29	7440-38-2	
Barium, Dissolved	22.6	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:29	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:29	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:29	7440-43-9	
Chromium, Dissolved	3.6J	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:29	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:29	7440-48-4	
Copper, Dissolved	5.3J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:29	7440-50-8	
Lead, Dissolved	4.1J	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:29	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:29	7439-98-7	
Nickel, Dissolved	1.6J	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:29	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:29	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:29	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:29	7440-28-0	
Vanadium, Dissolved	6.7J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:29	7440-62-2	
Zinc, Dissolved	8.0J	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:29	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:19	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 00:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 00:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 00:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 00:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 00:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 00:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 00:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 00:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 00:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 00:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 00:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:58	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: **MW9U-GW-121319** Lab ID: **10502648005** Collected: 12/13/19 11:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 00:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 00:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 00:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 00:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 00:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 00:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 00:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 00:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 00:58	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 00:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 00:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 00:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 00:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 00:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 00:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 00:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 00:58	75-15-0	
Carbon tetrachloride	153	ug/L	0.50	0.19	1		12/25/19 00:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 00:58	75-00-3	
Chloroform	3.6J	ug/L	4.0	0.45	1		12/25/19 00:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 00:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 00:58	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 00:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 00:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 00:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 00:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 00:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 00:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 00:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 00:58	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 00:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 00:58	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 00:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 00:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 00:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 00:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 00:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 00:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 00:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 00:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 00:58	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW9U-GW-121319 **Lab ID:** 10502648005 Collected: 12/13/19 11:45 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 00:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 00:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 00:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 00:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 00:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 00:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 00:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 00:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 00:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 00:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 00:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 00:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	75-136		1		12/25/19 00:58	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/25/19 00:58	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/25/19 00:58	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	97.1	mg/L	5.0	2.0	1		12/19/19 16:29		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	320	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 17:04	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	86.0	mg/L	1.2	0.12	1		12/14/19 23:16	16887-00-6	
Nitrate as N	4.3	mg/L	0.10	0.012	1		12/14/19 23:16	14797-55-8	
Sulfate	12.4	mg/L	1.2	0.28	1		12/14/19 23:16	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	3.7	mg/L	0.50	0.088	5		12/19/19 16:32		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	31.5J	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:22		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	5.4	mg/L	1.0	0.39	1		12/19/19 01:51	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW9D-GW-121319 **Lab ID:** 10502648006 Collected: 12/13/19 12:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/19/19 14:33	12/19/19 14:33	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/19/19 14:33	12/19/19 14:33	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/19/19 14:33	12/19/19 14:33	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/20/19 13:30	12/22/19 12:32	7440-36-0	
Arsenic, Dissolved	4.8J	ug/L	20.0	3.8	1	12/20/19 13:30	12/22/19 12:32	7440-38-2	
Barium, Dissolved	29.8	ug/L	10.0	0.60	1	12/20/19 13:30	12/22/19 12:32	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/20/19 13:30	12/22/19 12:32	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/20/19 13:30	12/22/19 12:32	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/20/19 13:30	12/22/19 12:32	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/20/19 13:30	12/22/19 12:32	7440-48-4	
Copper, Dissolved	4.6J	ug/L	10.0	1.2	1	12/20/19 13:30	12/22/19 12:32	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/20/19 13:30	12/22/19 12:32	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/20/19 13:30	12/22/19 12:32	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/20/19 13:30	12/22/19 12:32	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/20/19 13:30	12/22/19 12:32	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/20/19 13:30	12/22/19 12:32	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/20/19 13:30	12/22/19 12:32	7440-28-0	
Vanadium, Dissolved	7.9J	ug/L	15.0	0.43	1	12/20/19 13:30	12/22/19 12:32	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/20/19 13:30	12/22/19 12:32	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/16/19 16:40	12/20/19 14:21	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 01:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 01:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 01:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 01:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 01:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 01:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 01:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 01:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 01:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 01:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 01:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 01:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 01:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 01:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 01:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 01:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:22	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: MW9D-GW-121319 Lab ID: 10502648006 Collected: 12/13/19 12:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 01:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 01:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 01:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 01:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 01:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 01:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 01:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 01:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 01:22	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 01:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 01:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 01:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 01:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 01:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 01:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 01:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 01:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 01:22	75-15-0	
Carbon tetrachloride	114	ug/L	0.50	0.19	1		12/25/19 01:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 01:22	75-00-3	
Chloroform	5.5	ug/L	4.0	0.45	1		12/25/19 01:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 01:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 01:22	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 01:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 01:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 01:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 01:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 01:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 01:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 01:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 01:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 01:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 01:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 01:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 01:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 01:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 01:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 01:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 01:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 01:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 01:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 01:22	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Sample: MW9D-GW-121319 **Lab ID: 10502648006** Collected: 12/13/19 12:30 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 01:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 01:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 01:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 01:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 01:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 01:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 01:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 01:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 01:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 01:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 01:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 01:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	75-136		1		12/25/19 01:22	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/25/19 01:22	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 01:22	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	171	mg/L	5.0	2.0	1		12/20/19 13:20		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	303	mg/L	10.0	5.0	1		12/19/19 17:30		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/19/19 17:04	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	15.0	mg/L	1.2	0.12	1		12/14/19 23:35	16887-00-6	
Nitrate as N	4.0	mg/L	0.10	0.012	1		12/14/19 23:35	14797-55-8	
Sulfate	37.3	mg/L	1.2	0.28	1		12/14/19 23:35	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	3.3	mg/L	0.50	0.088	5		12/19/19 16:35		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:22		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.1	mg/L	1.0	0.39	1		12/19/19 02:04	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: TB1-121319 **Lab ID: 10502648007** Collected: 12/13/19 07:00 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/24/19 22:34	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/24/19 22:34	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 22:34	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/24/19 22:34	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 22:34	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 22:34	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:34	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/24/19 22:34	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 22:34	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/24/19 22:34	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:34	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:34	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/24/19 22:34	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/24/19 22:34	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 22:34	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 22:34	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/24/19 22:34	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/24/19 22:34	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/24/19 22:34	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:34	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/24/19 22:34	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:34	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/24/19 22:34	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/24/19 22:34	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/24/19 22:34	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/24/19 22:34	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:34	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/24/19 22:34	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/24/19 22:34	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/24/19 22:34	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/24/19 22:34	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/24/19 22:34	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/24/19 22:34	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/24/19 22:34	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 22:34	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/24/19 22:34	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/24/19 22:34	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/24/19 22:34	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/24/19 22:34	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/24/19 22:34	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/24/19 22:34	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:34	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/24/19 22:34	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/24/19 22:34	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/24/19 22:34	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/24/19 22:34	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Sample: TB1-121319 **Lab ID: 10502648007** Collected: 12/13/19 07:00 Received: 12/14/19 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/24/19 22:34	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/24/19 22:34	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/24/19 22:34	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/24/19 22:34	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/24/19 22:34	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 22:34	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/24/19 22:34	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/24/19 22:34	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/24/19 22:34	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/24/19 22:34	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/24/19 22:34	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/24/19 22:34	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:34	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/24/19 22:34	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/24/19 22:34	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/24/19 22:34	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/24/19 22:34	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/24/19 22:34	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/24/19 22:34	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/24/19 22:34	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/24/19 22:34	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:34	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/24/19 22:34	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/24/19 22:34	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/24/19 22:34	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:34	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/24/19 22:34	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 22:34	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/24/19 22:34	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/24/19 22:34	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 22:34	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/24/19 22:34	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/24/19 22:34	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/24/19 22:34	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	75-136		1		12/24/19 22:34	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/24/19 22:34	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/24/19 22:34	460-00-4	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

QC Batch: 1399248 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: R3484179-1 Matrix: Water
 Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/19/19 13:07	
Ethane	ug/L	<4.07	13.0	4.07	12/19/19 13:07	
Ethene	ug/L	<4.26	13.0	4.26	12/19/19 13:07	

Parameter	Units	R3484179-4		R3484179-5			% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec				
Methane	ug/L	67.8	66.6	68.4	98.2	101	85.0-115	2.67	20	
Ethane	ug/L	129	121	125	93.8	96.9	85.0-115	3.25	20	
Ethene	ug/L	127	116	120	91.3	94.5	85.0-115	3.39	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

QC Batch: 650105

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water Dissolved

Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3496420

Matrix: Water

Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/20/19 13:24	

LABORATORY CONTROL SAMPLE: 3496421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3496422 3496423

Parameter	Units	10502418002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.2	5.1	104	102	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 651190 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3501700 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/22/19 10:35	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/22/19 10:35	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/22/19 10:35	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/22/19 10:35	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/22/19 10:35	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/22/19 10:35	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/22/19 10:35	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/22/19 10:35	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/22/19 10:35	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/22/19 10:35	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/22/19 10:35	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/22/19 10:35	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/22/19 10:35	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/22/19 10:35	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/22/19 10:35	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/22/19 10:35	

LABORATORY CONTROL SAMPLE: 3501701

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1100	110	80-120	
Arsenic, Dissolved	ug/L	1000	1090	109	80-120	
Barium, Dissolved	ug/L	1000	1070	107	80-120	
Beryllium, Dissolved	ug/L	1000	1050	105	80-120	
Cadmium, Dissolved	ug/L	1000	1100	110	80-120	
Chromium, Dissolved	ug/L	1000	1060	106	80-120	
Cobalt, Dissolved	ug/L	1000	1070	107	80-120	
Copper, Dissolved	ug/L	1000	1050	105	80-120	
Lead, Dissolved	ug/L	1000	1090	109	80-120	
Molybdenum, Dissolved	ug/L	1000	1070	107	80-120	
Nickel, Dissolved	ug/L	1000	1080	108	80-120	
Selenium, Dissolved	ug/L	1000	1090	109	80-120	
Silver, Dissolved	ug/L	500	531	106	80-120	
Thallium, Dissolved	ug/L	1000	1100	110	80-120	
Vanadium, Dissolved	ug/L	1000	1050	105	80-120	
Zinc, Dissolved	ug/L	1000	1100	110	80-120	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501702		3501703		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10502418003 Result	MS Spike Conc.	MSD Spike Conc.									
Antimony, Dissolved	ug/L	<7.0	1000	1000	1070	906	107	91	75-125	17	20		
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1070	900	107	90	75-125	17	20		
Barium, Dissolved	ug/L	51.6	1000	1000	1090	927	104	88	75-125	16	20		
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1010	854	101	85	75-125	17	20		
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1070	898	107	90	75-125	17	20		
Chromium, Dissolved	ug/L	<0.66	1000	1000	1030	879	103	88	75-125	16	20		
Cobalt, Dissolved	ug/L	<0.50	1000	1000	1030	871	103	87	75-125	17	20		
Copper, Dissolved	ug/L	<1.2	1000	1000	1020	859	102	86	75-125	17	20		
Lead, Dissolved	ug/L	<2.0	1000	1000	1050	883	105	88	75-125	17	20		
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1040	883	104	88	75-125	17	20		
Nickel, Dissolved	ug/L	<1.1	1000	1000	1040	876	104	88	75-125	17	20		
Selenium, Dissolved	ug/L	<5.8	1000	1000	1050	887	105	89	75-125	17	20		
Silver, Dissolved	ug/L	<0.40	500	500	517	432	103	86	75-125	18	20		
Thallium, Dissolved	ug/L	<5.5	1000	1000	1040	888	104	89	75-125	16	20		
Vanadium, Dissolved	ug/L	<0.43	1000	1000	1030	870	103	87	75-125	17	20		
Zinc, Dissolved	ug/L	<6.3	1000	1000	1060	893	105	89	75-125	17	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 651652 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502648001, 10502648002, 10502648004, 10502648005, 10502648006, 10502648007

METHOD BLANK: 3504385 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648004, 10502648005, 10502648006, 10502648007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/24/19 22:10	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/24/19 22:10	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/24/19 22:10	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/24/19 22:10	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/24/19 22:10	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/24/19 22:10	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/24/19 22:10	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/24/19 22:10	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/24/19 22:10	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/24/19 22:10	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/24/19 22:10	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/24/19 22:10	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/24/19 22:10	
Acetone	ug/L	<9.2	20.0	9.2	12/24/19 22:10	
Acrolein	ug/L	<3.2	40.0	3.2	12/24/19 22:10	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/24/19 22:10	
Benzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/24/19 22:10	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/24/19 22:10	
Bromoform	ug/L	<0.80	4.0	0.80	12/24/19 22:10	
Bromomethane	ug/L	<1.8	4.0	1.8	12/24/19 22:10	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/24/19 22:10	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/24/19 22:10	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

METHOD BLANK: 3504385

Matrix: Water

Associated Lab Samples: 10502648001, 10502648002, 10502648004, 10502648005, 10502648006, 10502648007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Chloroethane	ug/L	<0.49	1.0	0.49	12/24/19 22:10	
Chloroform	ug/L	<0.45	4.0	0.45	12/24/19 22:10	
Chloromethane	ug/L	<0.48	4.0	0.48	12/24/19 22:10	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/24/19 22:10	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/24/19 22:10	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/24/19 22:10	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/24/19 22:10	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/24/19 22:10	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Naphthalene	ug/L	<0.48	1.0	0.48	12/24/19 22:10	
o-Xylene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Styrene	ug/L	<0.19	0.50	0.19	12/24/19 22:10	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/24/19 22:10	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/24/19 22:10	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/24/19 22:10	
Toluene	ug/L	<0.083	0.50	0.083	12/24/19 22:10	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/24/19 22:10	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/24/19 22:10	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/24/19 22:10	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/24/19 22:10	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/24/19 22:10	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/24/19 22:10	
1,2-Dichloroethane-d4 (S)	%	112	75-136		12/24/19 22:10	
4-Bromofluorobenzene (S)	%	105	75-125		12/24/19 22:10	
Toluene-d8 (S)	%	106	75-125		12/24/19 22:10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	25.1	125	68-141	
1,1,1-Trichloroethane	ug/L	20	21.5	107	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	24.8	124	73-125	
1,1,2-Trichloroethane	ug/L	20	22.6	113	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	27.2	136	69-132	L3
1,1-Dichloroethane	ug/L	20	24.2	121	73-125	
1,1-Dichloroethene	ug/L	20	24.0	120	71-126	
1,1-Dichloropropene	ug/L	20	20.2	101	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.1	115	72-126	
1,2,3-Trichloropropane	ug/L	20	24.5	122	75-126	
1,2,4-Trichlorobenzene	ug/L	20	23.2	116	71-134	
1,2,4-Trimethylbenzene	ug/L	20	25.2	126	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	56.4	113	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	23.6	118	75-129	
1,2-Dichlorobenzene	ug/L	20	23.2	116	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	42.7	107	74-125	N2
1,2-Dichloropropane	ug/L	20	22.6	113	75-125	
1,3,5-Trimethylbenzene	ug/L	20	25.1	125	75-127	
1,3-Dichlorobenzene	ug/L	20	22.5	113	75-126	
1,3-Dichloropropane	ug/L	20	22.5	113	75-125	
1,4-Dichlorobenzene	ug/L	20	21.3	106	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	398	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.4	97	72-128	
2,2-Dichloropropane	ug/L	20	19.3	96	65-138	
2-Butanone (MEK)	ug/L	100	97.9	98	59-144	
2-Chlorotoluene	ug/L	20	25.8	129	75-127	L3
2-Hexanone	ug/L	100	115	115	73-134	
4-Chlorotoluene	ug/L	20	25.3	126	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	62-141	
Acetone	ug/L	100	94.3	94	60-137	
Acrolein	ug/L	200	291	145	60-141	CH,L3
Acrylonitrile	ug/L	200	234	117	75-129	
Benzene	ug/L	20	21.8	109	73-125	
Bromobenzene	ug/L	20	21.8	109	73-125	
Bromochloromethane	ug/L	20	19.5	98	75-135	
Bromodichloromethane	ug/L	20	22.2	111	75-125	
Bromoform	ug/L	20	22.2	111	67-136	
Bromomethane	ug/L	20	22.7	114	30-150	
Carbon disulfide	ug/L	20	23.7	118	47-137	
Carbon tetrachloride	ug/L	20	22.4	112	75-125	
Chlorobenzene	ug/L	20	22.3	111	75-125	
Chloroethane	ug/L	20	21.7	109	63-136	
Chloroform	ug/L	20	20.4	102	73-128	
Chloromethane	ug/L	20	21.3	106	55-130	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	75-125	
cis-1,3-Dichloropropene	ug/L	20	23.7	119	74-125	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	22.0	110	75-125	
Dibromomethane	ug/L	20	21.3	106	75-125	
Dichlorodifluoromethane	ug/L	20	22.1	111	63-132	
Dichlorofluoromethane	ug/L	20	21.8	109	68-127	
Diisopropyl ether	ug/L	20	24.7	124	71-131	
Ethyl-tert-butyl ether	ug/L	20	22.4	112	75-125	
Ethylbenzene	ug/L	20	23.2	116	75-125	
Hexachloro-1,3-butadiene	ug/L	20	25.6	128	72-134	
Isopropylbenzene (Cumene)	ug/L	20	24.3	122	75-125	
m&p-Xylene	ug/L	40	52.2	131	75-126 L3	
Methyl-tert-butyl ether	ug/L	20	24.0	120	75-125	
Methylene Chloride	ug/L	20	24.4	122	70-125	
n-Butylbenzene	ug/L	20	25.7	128	75-126 L3	
n-Propylbenzene	ug/L	20	26.3	132	73-127 L3	
Naphthalene	ug/L	20	21.9	110	63-128	
o-Xylene	ug/L	20	23.2	116	75-128	
p-Isopropyltoluene	ug/L	20	25.6	128	75-125 L3	
sec-Butylbenzene	ug/L	20	25.8	129	75-126 L3	
Styrene	ug/L	20	23.5	117	75-125	
tert-Amylmethyl ether	ug/L	20	21.3	106	75-125	
tert-Butyl Alcohol	ug/L	200	227	114	75-130	
tert-Butylbenzene	ug/L	20	25.5	127	75-131	
Tetrachloroethene	ug/L	20	24.2	121	74-125	
Tetrahydrofuran	ug/L	200	163	81	64-138	
Toluene	ug/L	20	22.3	111	74-125	
trans-1,2-Dichloroethene	ug/L	20	23.3	116	68-128	
trans-1,3-Dichloropropene	ug/L	20	22.8	114	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.6	99	60-127	
Trichloroethene	ug/L	20	24.5	123	75-127	
Trichlorofluoromethane	ug/L	20	23.1	115	72-133	
Vinyl acetate	ug/L	20	23.1	115	61-129	
Vinyl chloride	ug/L	20	23.4	117	75-128	
Xylene (Total)	ug/L	60	75.4	126	75-125 LS	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504387 3504388

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502648001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	24.4	23.6	122	118	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.7	23.2	134	116	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	24.9	22.3	124	112	66-134	11	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.8	21.1	109	106	75-126	3	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3504387		3504388									
Parameter	Units	10502648001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.4	27.6	137	138	65-146	1	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	23.7	22.5	119	112	68-132	6	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	25.0	23.3	125	117	66-139	7	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	27.2	20.6	136	103	67-134	28	30	M1	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	23.1	22.3	116	111	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	24.5	22.2	123	111	69-128	10	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.8	22.4	114	112	65-140	2	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.3	25.5	126	128	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	54.9	51.9	110	104	54-138	6	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	22.9	22.2	114	111	68-125	3	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	22.0	23.3	110	116	74-136	6	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	20.1	20.1	101	100	68-125	0	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	45.7	41.2	114	103	71-126	10	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	22.5	21.6	113	108	67-125	4	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	26.0	25.7	130	128	68-137	1	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	22.9	23.1	114	115	75-131	1	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	22.2	21.5	111	108	71-125	3	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	21.2	21.7	106	109	74-126	3	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	388	396	97	99	68-125	2	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	25.1	18.7	125	94	54-129	29	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	24.4	20.2	122	101	69-139	19	30		
2-Butanone (MEK)	ug/L	<0.99	100	100	130	89.8	130	90	54-144	37	30	R1	
2-Chlorotoluene	ug/L	<0.16	20	20	26.5	26.8	133	134	75-134	1	30		
2-Hexanone	ug/L	<0.88	100	100	115	110	115	110	58-137	5	30		
4-Chlorotoluene	ug/L	<0.13	20	20	25.5	25.8	127	129	72-133	1	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	115	109	115	109	60-129	6	30		
Acetone	ug/L	<9.2	100	100	95.5	91.6	95	92	62-132	4	30		
Acrolein	ug/L	<3.2	200	200	210	202	105	101	30-150	4	30	CH	
Acrylonitrile	ug/L	<0.91	200	200	232	214	116	107	68-125	8	30		
Benzene	ug/L	<0.10	20	20	24.2	21.3	121	107	68-125	13	30		
Bromobenzene	ug/L	<0.21	20	20	21.7	21.9	109	109	73-126	1	30		
Bromochloromethane	ug/L	<0.27	20	20	22.9	20.2	115	101	66-143	13	30		
Bromodichloromethane	ug/L	<0.22	20	20	22.6	22.2	113	111	74-125	2	30		
Bromoform	ug/L	<0.80	20	20	21.8	20.9	109	104	64-134	4	30		
Bromomethane	ug/L	<1.8	20	20	21.8	21.0	109	105	30-150	4	30		
Carbon disulfide	ug/L	<0.19	20	20	25.3	22.4	126	112	43-147	12	30		
Carbon tetrachloride	ug/L	<0.19	20	20	27.9	24.3	140	121	71-143	14	30		
Chlorobenzene	ug/L	<0.17	20	20	21.7	21.3	108	107	75-125	2	30		
Chloroethane	ug/L	<0.49	20	20	22.5	20.5	112	102	75-129	9	30		
Chloroform	ug/L	<0.45	20	20	24.1	20.7	121	104	66-132	15	30		
Chloromethane	ug/L	<0.48	20	20	21.9	21.0	110	105	53-137	4	30		
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	23.0	19.7	115	99	67-133	15	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	21.4	20.6	107	103	66-125	4	30		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3504387		3504388								
Parameter	Units	10502648001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
Dibromochloromethane	ug/L	<0.12	20	20	21.3	21.1	106	106	62-132	1	30	
Dibromomethane	ug/L	<0.16	20	20	21.1	19.8	105	99	67-125	6	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	23.6	22.6	118	113	71-142	4	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	22.0	20.6	110	103	70-131	6	30	
Diisopropyl ether	ug/L	<0.13	20	20	23.4	22.7	117	114	63-131	3	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	23.2	20.5	116	103	66-128	12	30	
Ethylbenzene	ug/L	<0.14	20	20	22.9	23.1	114	116	74-126	1	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	27.0	22.2	135	111	68-143	20	30	
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	25.0	25.8	125	129	74-130	3	30	
m&p-Xylene	ug/L	<0.31	40	40	51.1	52.5	128	131	69-132	3	30	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.4	21.0	107	105	65-131	2	30	
Methylene Chloride	ug/L	<0.98	20	20	22.2	21.6	111	108	57-125	3	30	
n-Butylbenzene	ug/L	<0.24	20	20	26.2	24.9	131	125	71-131	5	30	
n-Propylbenzene	ug/L	<0.10	20	20	27.1	27.5	136	137	67-138	1	30	
Naphthalene	ug/L	<0.48	20	20	21.7	21.9	109	109	60-130	1	30	
o-Xylene	ug/L	<0.16	20	20	23.4	23.2	117	116	69-131	1	30	
p-Isopropyltoluene	ug/L	<0.15	20	20	25.1	25.4	126	127	72-133	1	30	
sec-Butylbenzene	ug/L	<0.15	20	20	26.8	26.2	134	131	73-134	2	30	
Styrene	ug/L	<0.19	20	20	22.6	21.9	113	110	72-125	3	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	21.7	19.9	108	100	67-125	9	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	206	209	103	104	64-137	1	30	
tert-Butylbenzene	ug/L	<0.15	20	20	26.3	26.2	132	131	70-143	0	30	
Tetrachloroethene	ug/L	<0.17	20	20	23.9	25.2	119	126	72-129	5	30	
Tetrahydrofuran	ug/L	<2.2	200	200	210	184	105	92	66-128	13	30	
Toluene	ug/L	<0.083	20	20	22.1	21.3	110	106	73-125	4	30	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	22.7	21.4	113	107	62-137	6	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	21.6	21.4	108	107	61-136	1	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.6	43.7	97	87	45-128	11	30	
Trichloroethene	ug/L	<0.15	20	20	24.5	23.9	123	119	74-132	3	30	
Trichlorofluoromethane	ug/L	<0.23	20	20	23.1	21.8	116	109	75-139	6	30	
Vinyl acetate	ug/L	<1.1	20	20	21.0	18.7	105	93	51-135	12	30	
Vinyl chloride	ug/L	<0.092	20	20	24.0	22.4	120	112	68-146	7	30	
Xylene (Total)	ug/L	<0.31	60	60	74.4	75.7	124	126	67-137	2	30	
1,2-Dichloroethane-d4 (S)	%						105	99	75-136			
4-Bromofluorobenzene (S)	%						105	101	75-125			
Toluene-d8 (S)	%						97	97	75-125			

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 650775 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005

METHOD BLANK: 3499478 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	12/19/19 13:29	

LABORATORY CONTROL SAMPLE & LCSD: 3499479 3499480

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.9	42.6	107	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499481 3499482

Parameter	Units	10503087001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	107	40	40	145	148	94	101	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499483 3499484

Parameter	Units	10503087003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	204	40	40	249	248	113	110	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 650776 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502648006

METHOD BLANK: 3499485 Matrix: Water
Associated Lab Samples: 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	2.5J	5.0	2.0	12/20/19 12:59	

LABORATORY CONTROL SAMPLE & LCSD: 3499486 3499487

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.8	42.9	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500418 3500419

Parameter	Units	10502418005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	158	40	40	201	204	106	114	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500420 3500421

Parameter	Units	10502671003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	84.3	40	40	108	114	60	75	80-120	5	20	M1

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

QC Batch: 650767

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3499409

Matrix: Water

Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/19/19 17:30	

LABORATORY CONTROL SAMPLE: 3499410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1000	100	80-120	

SAMPLE DUPLICATE: 3499411

Parameter	Units	10502671010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	206	202	2	5	

SAMPLE DUPLICATE: 3499412

Parameter	Units	10502671011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	182	183	1	5	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 169198 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 767792 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/19/19 13:12	

LABORATORY CONTROL SAMPLE: 767793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.21	106	90-110	

MATRIX SPIKE SAMPLE: 767795

Parameter	Units	20134886001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.016J	0.2	0.078	31	75-125	M1

SAMPLE DUPLICATE: 767794

Parameter	Units	20134886001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.016J	0.016J		20	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 649885 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3494763 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/13/19 20:28	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/13/19 20:28	
Sulfate	mg/L	0.50J	1.2	0.28	12/13/19 20:28	

LABORATORY CONTROL SAMPLE: 3494764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	11.9	95	90-110	
Nitrate as N	mg/L	1	0.93	93	90-110	
Sulfate	mg/L	12.5	11.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494765 3494766

Parameter	Units	10502418001		10502418002		3494765		3494766		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	23.0	12.5	12.5	35.2	35.3	98	98	90-110	0	20		
Nitrate as N	mg/L	2.1	1	1	3.1	3.1	99	100	90-110	0	20		
Sulfate	mg/L	8.8	12.5	12.5	21.9	21.7	105	104	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3494767 3494768

Parameter	Units	10502418002		10502418001		3494767		3494768		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	2.6	12.5	12.5	17.4	17.7	119	121	90-110	1	20	M1	
Nitrate as N	mg/L	0.063J	1	1	1.2	1.2	116	118	90-110	1	20	M1	
Sulfate	mg/L	6.6	12.5	12.5	19.7	20.1	105	108	90-110	2	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 650878 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3499953 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/19/19 14:26	FS

LABORATORY CONTROL SAMPLE: 3499954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.91	91	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499955 3499956

Parameter	Units	10502648005		10502648006		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	3.7	5	5	8.8	9.0	101	105	90-110	2	20	FS	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499957 3499958

Parameter	Units	10502648006		10502648005		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result								
Nitrogen, NO2 plus NO3	mg/L	3.3	5	5	8.7	8.4	107	102	90-110	3	20	FS	

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 650833 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 3499827 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/20/19 10:19	

LABORATORY CONTROL SAMPLE: 3499828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	300	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499829 3499830

Parameter	Units	10502418001		10502418002		10502418003		10502418004		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chemical Oxygen Demand	mg/L	<17.0	250	250	256	258	100	101	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499831 3499832

Parameter	Units	10502418002		10502418003		10502418004		10502418005		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chemical Oxygen Demand	mg/L	<17.0	250	250	244	244	98	97	90-110	0	20		

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QUALITY CONTROL DATA

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

QC Batch: 181265 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

METHOD BLANK: 716690 Matrix: Water
Associated Lab Samples: 10502648001, 10502648002, 10502648003, 10502648004, 10502648005, 10502648006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/18/19 20:50	

LABORATORY CONTROL SAMPLE: 716691

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716692 716693

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		12139302003 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Total Organic Carbon	mg/L	5.2	25	25	30.2	30.6	100	102	80-120	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716694 716695

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10502648006 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Total Organic Carbon	mg/L	1.1	25	25	27.3	27.2	105	104	80-120	1	20		

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QUALIFIERS

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

FS The sample was filtered in the laboratory prior to analysis.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

LS Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analytes used in the calculated result.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

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METHOD CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease

Pace Project No.: 10502648

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502648001	MW1D-GW-121319	RSK175	1399248	RSK-175	1399248
10502648002	MW2D-GW-121319	RSK175	1399248	RSK-175	1399248
10502648003	Reed-GW-121319	RSK175	1399248	RSK-175	1399248
10502648004	FD4-GW-121319	RSK175	1399248	RSK-175	1399248
10502648005	MW9U-GW-121319	RSK175	1399248	RSK-175	1399248
10502648006	MW9D-GW-121319	RSK175	1399248	RSK-175	1399248
10502648001	MW1D-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648002	MW2D-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648003	Reed-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648004	FD4-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648005	MW9U-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648006	MW9D-GW-121319	EPA 3010	651190	EPA 6010D	651349
10502648001	MW1D-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648002	MW2D-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648003	Reed-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648004	FD4-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648005	MW9U-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648006	MW9D-GW-121319	EPA 7470A	650105	EPA 7470A	650460
10502648001	MW1D-GW-121319	EPA 8260B	651652		
10502648002	MW2D-GW-121319	EPA 8260B	651652		
10502648004	FD4-GW-121319	EPA 8260B	651652		
10502648005	MW9U-GW-121319	EPA 8260B	651652		
10502648006	MW9D-GW-121319	EPA 8260B	651652		
10502648007	TB1-121319	EPA 8260B	651652		
10502648001	MW1D-GW-121319	SM 2320B	650775		
10502648002	MW2D-GW-121319	SM 2320B	650775		
10502648003	Reed-GW-121319	SM 2320B	650775		
10502648004	FD4-GW-121319	SM 2320B	650775		
10502648005	MW9U-GW-121319	SM 2320B	650775		
10502648006	MW9D-GW-121319	SM 2320B	650776		
10502648001	MW1D-GW-121319	SM 2540C	650767		
10502648002	MW2D-GW-121319	SM 2540C	650767		
10502648003	Reed-GW-121319	SM 2540C	650767		
10502648004	FD4-GW-121319	SM 2540C	650767		
10502648005	MW9U-GW-121319	SM 2540C	650767		
10502648006	MW9D-GW-121319	SM 2540C	650767		
10502648001	MW1D-GW-121319	SM 4500-S-2 D	169198		
10502648002	MW2D-GW-121319	SM 4500-S-2 D	169198		
10502648003	Reed-GW-121319	SM 4500-S-2 D	169198		
10502648004	FD4-GW-121319	SM 4500-S-2 D	169198		
10502648005	MW9U-GW-121319	SM 4500-S-2 D	169198		
10502648006	MW9D-GW-121319	SM 4500-S-2 D	169198		
10502648001	MW1D-GW-121319	EPA 300.0	649885		
10502648002	MW2D-GW-121319	EPA 300.0	649885		
10502648003	Reed-GW-121319	EPA 300.0	649885		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman WA-Cenex Harvest Lease
Pace Project No.: 10502648

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502648004	FD4-GW-121319	EPA 300.0	649885		
10502648005	MW9U-GW-121319	EPA 300.0	649885		
10502648006	MW9D-GW-121319	EPA 300.0	649885		
10502648001	MW1D-GW-121319	EPA 353.2	650878		
10502648002	MW2D-GW-121319	EPA 353.2	650878		
10502648003	Reed-GW-121319	EPA 353.2	650878		
10502648004	FD4-GW-121319	EPA 353.2	650878		
10502648005	MW9U-GW-121319	EPA 353.2	650878		
10502648006	MW9D-GW-121319	EPA 353.2	650878		
10502648001	MW1D-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648002	MW2D-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648003	Reed-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648004	FD4-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648005	MW9U-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648006	MW9D-GW-121319	EPA 410.4	650833	EPA 410.4	650995
10502648001	MW1D-GW-121319	SM 5310C	181265		
10502648002	MW2D-GW-121319	SM 5310C	181265		
10502648003	Reed-GW-121319	SM 5310C	181265		
10502648004	FD4-GW-121319	SM 5310C	181265		
10502648005	MW9U-GW-121319	SM 5310C	181265		
10502648006	MW9D-GW-121319	SM 5310C	181265		

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Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt

Client Name: UPRR Jacobs Project #: **WO# : 10502648**

PM: JMG Due Date: 12/31/19
CLIENT: UPRR_Jacobs

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 132075100 4529/4506

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: PB Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 0.9, 0.5 °C Average Corrected Temp (no temp blank only): See Exceptions 1 Container

Correction Factor: - Cooler Temp Corrected w/temp blank: 0.9, 0.4 °C

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 8/12/19/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

		COMMENTS:
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> Zinc Acetate
Exceptions: VOA Coliform, TOC/DOC Oil and Grease, DRO/8015 (Water) and Dioxin/PFAS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
		Chlorine? <input type="checkbox"/> No <input type="checkbox"/> pH Paper Lot# <input type="checkbox"/>
		Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): <u>237173</u>

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No

Comments/Resolution: _____

Project Manager Review:

Note: Whenever there is a discrepancy affecting liability samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Date: 121619

Labeled by: JMG Page 64 of 70

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

WO#: 12139419
 PM: RK1 Due Date: 12/31/19
 CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.4 Cooler Temp Corrected °C: 0.9 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: BA 12/17/19

				Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>				
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lauren Ferrier Date: 12/17/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Rece

Project

WO#: 20134909

PM: CMM

Due Date: 12/31/19

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/17/19 CAL

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No

Workorder: 10502648 Workorder Name: Freeman WA-Cenex Harvest Lease

Owner Received Date: 12/14/2019 Results Requested By: 12/31/2019

Report To		Subcontract To					Requested Analysis														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710					<div style="text-align: right;">1171571</div> <div style="text-align: right;">LAB USE ONLY</div>														
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Other VSC															
1	MW1D-GW-121319	PS	12/13/2019 09:00	10502648001	Water	3															- 01
2	MW2D-GW-121319	PS	12/13/2019 10:30	10502648002	Water	3															02
3	Reed-GW-121319	PS	12/13/2019 10:45	10502648003	Water	2															03
4	FD4-GW-121319	PS	12/13/2019 10:50	10502648004	Water	2															04
5	MW9U-GW-121319	PS	12/13/2019 11:45	10502648005	Water	3															05
6	MW9D-GW-121319	PS	12/13/2019 12:30	10502648006	Water	3															06
																	Comments				
Transfers		Released By		Date/Time		Received By		Date/Time		Methane, ethane, ethene											
1		[Signature]		12/16/19 1620		[Signature]		12-17-19													
2																					
3																					
Cooler Temperature on Receipt 24 °C				Custody Seal <input checked="" type="checkbox"/> or N				Received on Ice <input checked="" type="checkbox"/> or N				Samples Intact Y or N									

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.


237.122496

CCST

RAD SCREEN: <0.5 mR/hr



**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <i>PACETWA</i>	1171571
Cooler Received/Opened On: 12/17/19 Temperature: 27	
Received By: Tanner Windham	
Signature: 	
Receipt Check List	
	NP
	Yes
	No
COC Seal Present / Intact?	✓
COC Signed / Accurate?	✓
Bottles arrive intact?	✓
Correct bottles used?	✓
Sufficient volume sent?	✓
If Applicable	
VOA Zero headspace?	✓
Preservation Correct / Checked?	

December 31, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

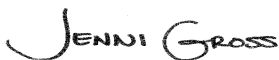
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Pace Analytical Services National

Arkansas Certification #: 88-0469	New Jersey Certification #: TN002
California Certification #: 2932	New Mexico DW Certification
Canada Certification #: 1461.01	New York Certification #: 11742
Colorado Certification #: TN00003	North Carolina Aquatic Toxicity Certification #: 41
Connecticut Certification #: PH-0197	North Carolina Drinking Water Certification #: 21704
DOD Certification: #1461.01	North Carolina Environmental Certificate #: 375
EPA# TN00003	North Dakota Certification #: R-140
Florida Certification #: E87487	Ohio VAP Certification #: CL0069
Georgia DW Certification #: 923	Oklahoma Certification #: 9915
Georgia Certification: NELAP	Oregon Certification #: TN200002
Idaho Certification #: TN00003	Pennsylvania Certification #: 68-02979
Illinois Certification #: 200008	Rhode Island Certification #: LAO00356
Indiana Certification #: C-TN-01	South Carolina Certification #: 84004
Iowa Certification #: 364	South Dakota Certification
Kansas Certification #: E-10277	Tennessee DW/Chem/Micro Certification #: 2006
Kentucky UST Certification #: 16	Texas Certification #: T 104704245-17-14
Kentucky Certification #: 90010	Texas Mold Certification #: LAB0152
Louisiana Certification #: AI30792	USDA Soil Permit #: P330-15-00234
Louisiana DW Certification #: LA180010	Utah Certification #: TN00003
Maine Certification #: TN0002	Virginia Certification #: VT2006
Maryland Certification #: 324	Vermont Dept. of Health: ID# VT-2006
Massachusetts Certification #: M-TN003	Virginia Certification #: 460132
Michigan Certification #: 9958	Washington Certification #: C847
Minnesota Certification #: 047-999-395	West Virginia Certification #: 233
Mississippi Certification #: TN00003	Wisconsin Certification #: 9980939910
Missouri Certification #: 340	Wyoming UST Certification #: via A2LA 2926.01
Montana Certification #: CERT0086	A2LA-ISO 17025 Certification #: 1461.01
Nebraska Certification #: NE-OS-15-05	A2LA-ISO 17025 Certification #: 1461.02
Nevada Certification #: TN-03-2002-34	AIHA-LAP/LLC EMLAP Certification #:100789
New Hampshire Certification #: 2975	

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502824001	MW27-GW-121619	Water	12/16/19 09:45	12/17/19 08:40
10502824002	MW30-GW-121619	Water	12/16/19 10:30	12/17/19 08:40
10502824003	MW29-GW-121619	Water	12/16/19 11:00	12/17/19 08:40
10502824004	MW5D-GW-121619	Water	12/16/19 12:15	12/17/19 08:40
10502824005	MW31-GW-121619	Water	12/16/19 13:30	12/17/19 08:40
10502824006	MW32-GW-121619	Water	12/16/19 14:15	12/17/19 08:40
10502824007	TB1-121619	Water	12/16/19 07:00	12/17/19 08:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502824001	MW27-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824002	MW30-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824003	MW29-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824004	MW5D-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824005	MW31-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824006	MW32-GW-121619	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502824007	TB1-121619	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10502824001	MW27-GW-121619					
EPA 6010D	Barium, Dissolved	45.6	ug/L	10.0	12/23/19 16:10	
EPA 6010D	Chromium, Dissolved	0.97J	ug/L	10.0	12/23/19 16:10	
EPA 6010D	Cobalt, Dissolved	0.67J	ug/L	10.0	12/23/19 16:10	
EPA 6010D	Nickel, Dissolved	1.9J	ug/L	20.0	12/23/19 16:10	
EPA 6010D	Vanadium, Dissolved	18.4	ug/L	15.0	12/23/19 16:10	
EPA 7470A	Mercury, Dissolved	0.11J	ug/L	0.20	12/30/19 12:17	
EPA 8260B	Carbon tetrachloride	3.9	ug/L	0.50	12/25/19 01:46	
EPA 8260B	Chloroform	2.9J	ug/L	4.0	12/25/19 01:46	
SM 2320B	Alkalinity, Total as CaCO3	159	mg/L	5.0	12/26/19 15:26	
SM 2540C	Total Dissolved Solids	317	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	2.6	mg/L	1.2	12/18/19 19:57	
EPA 300.0	Nitrate as N	0.22	mg/L	0.10	12/18/19 19:57	H1
EPA 300.0	Sulfate	20.0	mg/L	1.2	12/18/19 19:57	
EPA 353.2	Nitrogen, NO2 plus NO3	0.19	mg/L	0.10	12/27/19 12:47	FS
SM 5310C	Total Organic Carbon	0.84J	mg/L	1.0	12/19/19 17:12	
10502824002	MW30-GW-121619					
EPA 6010D	Barium, Dissolved	8.3J	ug/L	10.0	12/23/19 16:15	
EPA 6010D	Cobalt, Dissolved	0.63J	ug/L	10.0	12/23/19 16:15	
EPA 6010D	Vanadium, Dissolved	3.6J	ug/L	15.0	12/23/19 16:15	
SM 2320B	Alkalinity, Total as CaCO3	218	mg/L	5.0	12/30/19 10:30	
SM 2540C	Total Dissolved Solids	276	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	4.9	mg/L	1.2	12/18/19 20:16	
EPA 300.0	Nitrate as N	2.3	mg/L	0.10	12/18/19 20:16	H1
EPA 300.0	Sulfate	2.5	mg/L	1.2	12/18/19 20:16	B
EPA 353.2	Nitrogen, NO2 plus NO3	2.0	mg/L	0.10	12/27/19 12:50	FS,M1
SM 5310C	Total Organic Carbon	0.62J	mg/L	1.0	12/19/19 17:25	
10502824003	MW29-GW-121619					
EPA 6010D	Barium, Dissolved	26.2	ug/L	10.0	12/23/19 16:17	
EPA 6010D	Beryllium, Dissolved	0.13J	ug/L	5.0	12/23/19 16:17	
EPA 6010D	Cobalt, Dissolved	0.79J	ug/L	10.0	12/23/19 16:17	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	12/23/19 16:17	
EPA 6010D	Vanadium, Dissolved	5.1J	ug/L	15.0	12/23/19 16:17	
EPA 8260B	Carbon tetrachloride	412	ug/L	2.5	12/26/19 14:06	
EPA 8260B	Chloroform	87.2	ug/L	4.0	12/25/19 02:34	
SM 2320B	Alkalinity, Total as CaCO3	216	mg/L	5.0	12/30/19 10:56	
SM 2540C	Total Dissolved Solids	345	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	12.7	mg/L	1.2	12/18/19 20:35	
EPA 300.0	Nitrate as N	2.6	mg/L	0.10	12/18/19 20:35	H1
EPA 300.0	Sulfate	42.5	mg/L	1.2	12/18/19 20:35	
EPA 353.2	Nitrogen, NO2 plus NO3	2.3	mg/L	0.50	12/27/19 14:22	
SM 5310C	Total Organic Carbon	1.6	mg/L	1.0	12/19/19 17:38	
10502824004	MW5D-GW-121619					
EPA 6010D	Barium, Dissolved	93.1	ug/L	10.0	12/23/19 16:18	
EPA 6010D	Cadmium, Dissolved	0.48J	ug/L	3.0	12/23/19 16:18	
EPA 6010D	Vanadium, Dissolved	8.2J	ug/L	15.0	12/23/19 16:18	
EPA 6010D	Zinc, Dissolved	72.2	ug/L	20.0	12/23/19 16:18	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10502824004	MW5D-GW-121619					
SM 2320B	Alkalinity, Total as CaCO3	218	mg/L	5.0	12/30/19 11:20	
SM 2540C	Total Dissolved Solids	258	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	1.4	mg/L	1.2	12/18/19 20:53	
EPA 300.0	Nitrate as N	0.24	mg/L	0.10	12/18/19 20:53	H1
EPA 300.0	Sulfate	2.3	mg/L	1.2	12/18/19 20:53	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.18	mg/L	0.10	12/27/19 13:26	M1
SM 5310C	Total Organic Carbon	0.42J	mg/L	1.0	12/19/19 17:51	
10502824005	MW31-GW-121619					
EPA 6010D	Barium, Dissolved	32.9	ug/L	10.0	12/23/19 16:20	
EPA 6010D	Cobalt, Dissolved	0.61J	ug/L	10.0	12/23/19 16:20	
EPA 6010D	Molybdenum, Dissolved	6.9J	ug/L	15.0	12/23/19 16:20	
EPA 6010D	Nickel, Dissolved	1.2J	ug/L	20.0	12/23/19 16:20	
EPA 6010D	Vanadium, Dissolved	3.6J	ug/L	15.0	12/23/19 16:20	
EPA 6010D	Zinc, Dissolved	7.7J	ug/L	20.0	12/23/19 16:20	
SM 2320B	Alkalinity, Total as CaCO3	129	mg/L	5.0	12/30/19 11:39	
SM 2540C	Total Dissolved Solids	252	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	6.9	mg/L	1.2	12/18/19 21:12	
EPA 300.0	Nitrate as N	0.42	mg/L	0.10	12/18/19 21:12	H1
EPA 300.0	Sulfate	21.9	mg/L	1.2	12/18/19 21:12	
EPA 353.2	Nitrogen, NO2 plus NO3	0.34	mg/L	0.10	12/27/19 13:40	FS
SM 5310C	Total Organic Carbon	0.42J	mg/L	1.0	12/19/19 18:04	
10502824006	MW32-GW-121619					
EPA 6010D	Barium, Dissolved	45.2	ug/L	10.0	12/23/19 16:22	
EPA 6010D	Cobalt, Dissolved	0.92J	ug/L	10.0	12/23/19 16:22	
EPA 6010D	Molybdenum, Dissolved	4.0J	ug/L	15.0	12/23/19 16:22	
EPA 6010D	Vanadium, Dissolved	0.48J	ug/L	15.0	12/23/19 16:22	
SM 2320B	Alkalinity, Total as CaCO3	171	mg/L	5.0	12/30/19 11:44	
SM 2540C	Total Dissolved Solids	228	mg/L	10.0	12/23/19 11:29	
EPA 300.0	Chloride	6.7	mg/L	1.2	12/19/19 12:02	
EPA 300.0	Sulfate	14.6	mg/L	1.2	12/19/19 12:02	
SM 5310C	Total Organic Carbon	0.73J	mg/L	1.0	12/19/19 18:17	

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

7 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 651652

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3504386)
 - Acrolein
- MS (Lab ID: 3504387)
 - Acrolein
- MSD (Lab ID: 3504388)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3504386)
 - 1,1,2-Trichlorotrifluoroethane
 - 2-Chlorotoluene
 - Acrolein
 - m&p-Xylene
 - n-Butylbenzene
 - n-Propylbenzene
 - p-Isopropyltoluene

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- sec-Butylbenzene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651652

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502648001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3504387)
 - 1,1-Dichloropropene

R1: RPD value was outside control limits.

- MSD (Lab ID: 3504388)
 - 2-Butanone (MEK)

Additional Comments:

Analyte Comments:

QC Batch: 651652

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3504385)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3504386)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3504387)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3504388)
 - 1,2-Dichloroethene (Total)
- MW27-GW-121619 (Lab ID: 10502824001)
 - 1,2-Dichloroethene (Total)
- MW29-GW-121619 (Lab ID: 10502824003)
 - 1,2-Dichloroethene (Total)
- MW30-GW-121619 (Lab ID: 10502824002)
 - 1,2-Dichloroethene (Total)
- MW31-GW-121619 (Lab ID: 10502824005)
 - 1,2-Dichloroethene (Total)
- MW32-GW-121619 (Lab ID: 10502824006)
 - 1,2-Dichloroethene (Total)
- MW5D-GW-121619 (Lab ID: 10502824004)
 - 1,2-Dichloroethene (Total)
- TB1-121619 (Lab ID: 10502824007)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

Analyte Comments:

QC Batch: 651652

- BLANK (Lab ID: 3504385)
 - Dichlorofluoromethane
- LCS (Lab ID: 3504386)
 - Dichlorofluoromethane
- MS (Lab ID: 3504387)
 - Dichlorofluoromethane
- MSD (Lab ID: 3504388)
 - Dichlorofluoromethane
- MW27-GW-121619 (Lab ID: 10502824001)
 - Dichlorofluoromethane
- MW29-GW-121619 (Lab ID: 10502824003)
 - Dichlorofluoromethane
- MW30-GW-121619 (Lab ID: 10502824002)
 - Dichlorofluoromethane
- MW31-GW-121619 (Lab ID: 10502824005)
 - Dichlorofluoromethane
- MW32-GW-121619 (Lab ID: 10502824006)
 - Dichlorofluoromethane
- MW5D-GW-121619 (Lab ID: 10502824004)
 - Dichlorofluoromethane
- TB1-121619 (Lab ID: 10502824007)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 169400

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- DUP (Lab ID: 768670)
 - Sulfide, Total
- MS (Lab ID: 768671)
 - Sulfide, Total
- MW27-GW-121619 (Lab ID: 10502824001)
 - Sulfide, Total
- MW31-GW-121619 (Lab ID: 10502824005)
 - Sulfide, Total

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the recognized method holding time.

- MW27-GW-121619 (Lab ID: 10502824001)
- MW29-GW-121619 (Lab ID: 10502824003)
- MW30-GW-121619 (Lab ID: 10502824002)
- MW31-GW-121619 (Lab ID: 10502824005)
- MW32-GW-121619 (Lab ID: 10502824006)
- MW5D-GW-121619 (Lab ID: 10502824004)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 650361

B: Analyte was detected in the associated method blank.

- BLANK for HBN 650361 [WETA/419 (Lab ID: 3497220)]
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650361

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502781002,10502784001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3497232)
 - Nitrate as N
- MSD (Lab ID: 3497233)
 - Nitrate as N

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3497222)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3497223)
 - Chloride
 - Nitrate as N
 - Sulfate

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 31, 2019

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 652014

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502824001,10502824002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3505963)
- Nitrogen, NO2 plus NO3

QC Batch: 652015

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502824003,10502824004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3505969)
- Nitrogen, NO2 plus NO3

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

6 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW27-GW-121619 **Lab ID: 10502824001** Collected: 12/16/19 09:45 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:06	12/23/19 13:06	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:06	12/23/19 13:06	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:06	12/23/19 13:06	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:10	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:10	7440-38-2	
Barium, Dissolved	45.6	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:10	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:10	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:10	7440-43-9	
Chromium, Dissolved	0.97J	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:10	7440-47-3	
Cobalt, Dissolved	0.67J	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:10	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:10	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:10	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:10	7439-98-7	
Nickel, Dissolved	1.9J	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:10	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:10	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:10	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:10	7440-28-0	
Vanadium, Dissolved	18.4	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:10	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:10	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	0.11J	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:17	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 01:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 01:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 01:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 01:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 01:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 01:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 01:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 01:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 01:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 01:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 01:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 01:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 01:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 01:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 01:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 01:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:46	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: **MW27-GW-121619** Lab ID: **10502824001** Collected: 12/16/19 09:45 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 01:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 01:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 01:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 01:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 01:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 01:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 01:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 01:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 01:46	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 01:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 01:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 01:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 01:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 01:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 01:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 01:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 01:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 01:46	75-15-0	
Carbon tetrachloride	3.9	ug/L	0.50	0.19	1		12/25/19 01:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 01:46	75-00-3	
Chloroform	2.9J	ug/L	4.0	0.45	1		12/25/19 01:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 01:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 01:46	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 01:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 01:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 01:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 01:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 01:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 01:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 01:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 01:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 01:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 01:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 01:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 01:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 01:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 01:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 01:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 01:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 01:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 01:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 01:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 01:46	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW27-GW-121619 **Lab ID: 10502824001** Collected: 12/16/19 09:45 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 01:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 01:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 01:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 01:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 01:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 01:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 01:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 01:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 01:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 01:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 01:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 01:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 01:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 01:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	75-136		1		12/25/19 01:46	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 01:46	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 01:46	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	159	mg/L	5.0	2.0	1		12/26/19 15:26		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	317	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.031	mg/L	0.10	0.031	5		12/20/19 13:04	18496-25-8	D3
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.6	mg/L	1.2	0.12	1		12/18/19 19:57	16887-00-6	
Nitrate as N	0.22	mg/L	0.10	0.012	1		12/18/19 19:57	14797-55-8	H1
Sulfate	20.0	mg/L	1.2	0.28	1		12/18/19 19:57	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.19	mg/L	0.10	0.018	1		12/27/19 12:47		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.84J	mg/L	1.0	0.39	1		12/19/19 17:12	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Project No.: 10502824

Sample: **MW30-GW-121619** Lab ID: **10502824002** Collected: 12/16/19 10:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:10	12/23/19 13:10	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:10	12/23/19 13:10	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:10	12/23/19 13:10	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:15	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:15	7440-38-2	
Barium, Dissolved	8.3J	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:15	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:15	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:15	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:15	7440-47-3	
Cobalt, Dissolved	0.63J	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:15	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:15	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:15	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:15	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:15	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:15	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:15	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:15	7440-28-0	
Vanadium, Dissolved	3.6J	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:15	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:15	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:19	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 02:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 02:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 02:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 02:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 02:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 02:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 02:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 02:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 02:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:10	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW30-GW-121619 **Lab ID: 10502824002** Collected: 12/16/19 10:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 02:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 02:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 02:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 02:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 02:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 02:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 02:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 02:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 02:10	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 02:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 02:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 02:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 02:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 02:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 02:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 02:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 02:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 02:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 02:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 02:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 02:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 02:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 02:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 02:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 02:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 02:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 02:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 02:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 02:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 02:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 02:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 02:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 02:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 02:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 02:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 02:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 02:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 02:10	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Sample: MW30-GW-121619 **Lab ID: 10502824002** Collected: 12/16/19 10:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 02:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 02:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 02:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 02:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 02:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	75-136		1		12/25/19 02:10	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/25/19 02:10	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 02:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	218	mg/L	5.0	2.0	1		12/30/19 10:30		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	276	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/20/19 13:06	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	4.9	mg/L	1.2	0.12	1		12/18/19 20:16	16887-00-6	
Nitrate as N	2.3	mg/L	0.10	0.012	1		12/18/19 20:16	14797-55-8	H1
Sulfate	2.5	mg/L	1.2	0.28	1		12/18/19 20:16	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	2.0	mg/L	0.10	0.018	1		12/27/19 12:50		FS,M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.62J	mg/L	1.0	0.39	1		12/19/19 17:25	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW29-GW-121619 **Lab ID: 10502824003** Collected: 12/16/19 11:00 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:12	12/23/19 13:12	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:12	12/23/19 13:12	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:12	12/23/19 13:12	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:17	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:17	7440-38-2	
Barium, Dissolved	26.2	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:17	7440-39-3	
Beryllium, Dissolved	0.13J	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:17	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:17	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:17	7440-47-3	
Cobalt, Dissolved	0.79J	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:17	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:17	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:17	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:17	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:17	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:17	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:17	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:17	7440-28-0	
Vanadium, Dissolved	5.1J	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:17	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:17	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:27	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 02:34	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 02:34	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:34	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 02:34	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:34	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:34	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:34	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 02:34	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:34	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 02:34	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:34	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:34	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 02:34	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 02:34	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:34	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:34	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 02:34	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 02:34	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:34	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:34	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: **MW29-GW-121619** Lab ID: **10502824003** Collected: 12/16/19 11:00 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 02:34	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:34	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 02:34	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 02:34	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 02:34	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 02:34	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:34	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 02:34	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 02:34	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 02:34	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 02:34	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 02:34	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 02:34	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:34	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:34	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 02:34	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 02:34	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 02:34	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 02:34	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 02:34	75-15-0	
Carbon tetrachloride	412	ug/L	2.5	0.94	5		12/26/19 14:06	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:34	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 02:34	75-00-3	
Chloroform	87.2	ug/L	4.0	0.45	1		12/25/19 02:34	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 02:34	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 02:34	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 02:34	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 02:34	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 02:34	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 02:34	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 02:34	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:34	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:34	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 02:34	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 02:34	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 02:34	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 02:34	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 02:34	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:34	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 02:34	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 02:34	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 02:34	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 02:34	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 02:34	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 02:34	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 02:34	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Sample: MW29-GW-121619 **Lab ID: 10502824003** Collected: 12/16/19 11:00 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:34	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:34	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:34	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 02:34	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:34	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:34	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:34	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:34	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 02:34	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 02:34	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:34	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:34	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 02:34	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 02:34	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	124	%	75-136		1		12/25/19 02:34	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 02:34	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/25/19 02:34	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	216	mg/L	5.0	2.0	1		12/30/19 10:56		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	345	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/20/19 13:06	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	12.7	mg/L	1.2	0.12	1		12/18/19 20:35	16887-00-6	
Nitrate as N	2.6	mg/L	0.10	0.012	1		12/18/19 20:35	14797-55-8	H1
Sulfate	42.5	mg/L	1.2	0.28	1		12/18/19 20:35	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	2.3	mg/L	0.50	0.088	5		12/27/19 14:22		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.6	mg/L	1.0	0.39	1		12/19/19 17:38	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW5D-GW-121619 **Lab ID: 10502824004** Collected: 12/16/19 12:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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VOA (GC) RSK175

Analytical Method: RSK-175 Preparation Method: RSK175

Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:14	12/23/19 13:14	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:14	12/23/19 13:14	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:14	12/23/19 13:14	74-85-1	

6010D MET ICP, Dissolved

Analytical Method: EPA 6010D Preparation Method: EPA 3010

Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:18	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:18	7440-38-2	
Barium, Dissolved	93.1	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:18	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:18	7440-41-7	
Cadmium, Dissolved	0.48J	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:18	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:18	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:18	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:18	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:18	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:18	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:18	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:18	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:18	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:18	7440-28-0	
Vanadium, Dissolved	8.2J	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:18	7440-62-2	
Zinc, Dissolved	72.2	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:18	7440-66-6	

7470A Mercury, Dissolved

Analytical Method: EPA 7470A Preparation Method: EPA 7470A

Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:29	7439-97-6	
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8260B MSV Low Level

Analytical Method: EPA 8260B

1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 02:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 02:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 02:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 02:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 02:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 02:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 02:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 02:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 02:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 02:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 02:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:58	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW5D-GW-121619 Lab ID: 10502824004 Collected: 12/16/19 12:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 02:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 02:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 02:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 02:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 02:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 02:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 02:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 02:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 02:58	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 02:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 02:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 02:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 02:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 02:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 02:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 02:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 02:58	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 02:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 02:58	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 02:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 02:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 02:58	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 02:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 02:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 02:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 02:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 02:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 02:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 02:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 02:58	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 02:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 02:58	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 02:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 02:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 02:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 02:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 02:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 02:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 02:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 02:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 02:58	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Sample: MW5D-GW-121619 **Lab ID: 10502824004** Collected: 12/16/19 12:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 02:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 02:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 02:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 02:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 02:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 02:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 02:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 02:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 02:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 02:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 02:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 02:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	75-136		1		12/25/19 02:58	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 02:58	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/25/19 02:58	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	218	mg/L	5.0	2.0	1		12/30/19 11:20		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	258	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/20/19 13:07	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.4	mg/L	1.2	0.12	1		12/18/19 20:53	16887-00-6	
Nitrate as N	0.24	mg/L	0.10	0.012	1		12/18/19 20:53	14797-55-8	H1
Sulfate	2.3	mg/L	1.2	0.28	1		12/18/19 20:53	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.18	mg/L	0.10	0.018	1		12/27/19 13:26		M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.42J	mg/L	1.0	0.39	1		12/19/19 17:51	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW31-GW-121619 **Lab ID: 10502824005** Collected: 12/16/19 13:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:17	12/23/19 13:17	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:17	12/23/19 13:17	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:17	12/23/19 13:17	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:20	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:20	7440-38-2	
Barium, Dissolved	32.9	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:20	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:20	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:20	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:20	7440-47-3	
Cobalt, Dissolved	0.61J	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:20	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:20	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:20	7439-92-1	
Molybdenum, Dissolved	6.9J	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:20	7439-98-7	
Nickel, Dissolved	1.2J	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:20	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:20	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:20	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:20	7440-28-0	
Vanadium, Dissolved	3.6J	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:20	7440-62-2	
Zinc, Dissolved	7.7J	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:20	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:32	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 03:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 03:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 03:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 03:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 03:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 03:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 03:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 03:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 03:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 03:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 03:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 03:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 03:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 03:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 03:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 03:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:22	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW31-GW-121619 **Lab ID: 10502824005** Collected: 12/16/19 13:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 03:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 03:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 03:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 03:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 03:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 03:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 03:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 03:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 03:22	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 03:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 03:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 03:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 03:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 03:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 03:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 03:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 03:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 03:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 03:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 03:22	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 03:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 03:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 03:22	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 03:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 03:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 03:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 03:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 03:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 03:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 03:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 03:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 03:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 03:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 03:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 03:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 03:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 03:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 03:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 03:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 03:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 03:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 03:22	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW31-GW-121619 **Lab ID:** 10502824005 Collected: 12/16/19 13:30 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 03:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 03:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 03:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 03:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 03:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 03:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 03:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 03:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 03:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 03:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 03:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 03:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/25/19 03:22	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/25/19 03:22	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 03:22	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	129	mg/L	5.0	2.0	1		12/30/19 11:39		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	252	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.031	mg/L	0.10	0.031	5		12/20/19 15:46	18496-25-8	D3
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	6.9	mg/L	1.2	0.12	1		12/18/19 21:12	16887-00-6	
Nitrate as N	0.42	mg/L	0.10	0.012	1		12/18/19 21:12	14797-55-8	H1
Sulfate	21.9	mg/L	1.2	0.28	1		12/18/19 21:12	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.34	mg/L	0.10	0.018	1		12/27/19 13:40		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:23		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.42J	mg/L	1.0	0.39	1		12/19/19 18:04	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Project No.: 10502824

Sample: **MW32-GW-121619** Lab ID: **10502824006** Collected: 12/16/19 14:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:19	12/23/19 13:19	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:19	12/23/19 13:19	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:19	12/23/19 13:19	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/18/19 14:35	12/23/19 16:22	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/18/19 14:35	12/23/19 16:22	7440-38-2	
Barium, Dissolved	45.2	ug/L	10.0	0.60	1	12/18/19 14:35	12/23/19 16:22	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/18/19 14:35	12/23/19 16:22	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/18/19 14:35	12/23/19 16:22	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/18/19 14:35	12/23/19 16:22	7440-47-3	
Cobalt, Dissolved	0.92J	ug/L	10.0	0.50	1	12/18/19 14:35	12/23/19 16:22	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/18/19 14:35	12/23/19 16:22	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/18/19 14:35	12/23/19 16:22	7439-92-1	
Molybdenum, Dissolved	4.0J	ug/L	15.0	3.8	1	12/18/19 14:35	12/23/19 16:22	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/18/19 14:35	12/23/19 16:22	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/18/19 14:35	12/23/19 16:22	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/18/19 14:35	12/23/19 16:22	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/18/19 14:35	12/23/19 16:22	7440-28-0	
Vanadium, Dissolved	0.48J	ug/L	15.0	0.43	1	12/18/19 14:35	12/23/19 16:22	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/18/19 14:35	12/23/19 16:22	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/18/19 17:20	12/30/19 12:34	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 03:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 03:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 03:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 03:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 03:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 03:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 03:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 03:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 03:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 03:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 03:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 03:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 03:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 03:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 03:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 03:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:46	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW32-GW-121619 Lab ID: 10502824006 Collected: 12/16/19 14:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 03:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 03:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 03:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 03:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 03:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 03:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 03:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 03:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 03:46	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 03:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 03:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 03:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 03:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 03:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 03:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 03:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 03:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 03:46	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 03:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 03:46	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 03:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 03:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 03:46	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 03:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 03:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 03:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 03:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 03:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 03:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 03:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 03:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 03:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 03:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 03:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 03:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 03:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 03:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 03:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 03:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 03:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 03:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 03:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 03:46	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: MW32-GW-121619 **Lab ID: 10502824006** Collected: 12/16/19 14:15 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 03:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 03:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 03:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 03:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 03:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 03:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 03:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 03:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 03:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 03:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 03:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 03:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 03:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 03:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	75-136		1		12/25/19 03:46	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 03:46	2037-26-5	
4-Bromofluorobenzene (S)	107	%	75-125		1		12/25/19 03:46	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	171	mg/L	5.0	2.0	1		12/30/19 11:44		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	228	mg/L	10.0	5.0	1		12/23/19 11:29		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/20/19 15:47	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	6.7	mg/L	1.2	0.12	1		12/19/19 12:02	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/19/19 12:02	14797-55-8	H1
Sulfate	14.6	mg/L	1.2	0.28	1		12/19/19 12:02	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/27/19 13:41		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:24		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.73J	mg/L	1.0	0.39	1		12/19/19 18:17	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: **TB1-121619** Lab ID: **10502824007** Collected: 12/16/19 07:00 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/24/19 22:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/24/19 22:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 22:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/24/19 22:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 22:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 22:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/24/19 22:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 22:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/24/19 22:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/24/19 22:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/24/19 22:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 22:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 22:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/24/19 22:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/24/19 22:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/24/19 22:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:58	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/24/19 22:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/24/19 22:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/24/19 22:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/24/19 22:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/24/19 22:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/24/19 22:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/24/19 22:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/24/19 22:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/24/19 22:58	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/24/19 22:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/24/19 22:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/24/19 22:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 22:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/24/19 22:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/24/19 22:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/24/19 22:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/24/19 22:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/24/19 22:58	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/24/19 22:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/24/19 22:58	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/24/19 22:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/24/19 22:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/24/19 22:58	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Sample: TB1-121619 **Lab ID: 10502824007** Collected: 12/16/19 07:00 Received: 12/17/19 08:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/24/19 22:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/24/19 22:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/24/19 22:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/24/19 22:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/24/19 22:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 22:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/24/19 22:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/24/19 22:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/24/19 22:58	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/24/19 22:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/24/19 22:58	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/24/19 22:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/24/19 22:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/24/19 22:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/24/19 22:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/24/19 22:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/24/19 22:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/24/19 22:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/24/19 22:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/24/19 22:58	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/24/19 22:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/24/19 22:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/24/19 22:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/24/19 22:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/24/19 22:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/24/19 22:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/24/19 22:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 22:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/24/19 22:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/24/19 22:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 22:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/24/19 22:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/24/19 22:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/24/19 22:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/24/19 22:58	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/24/19 22:58	2037-26-5	
4-Bromofluorobenzene (S)	107	%	75-125		1		12/24/19 22:58	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

QC Batch: 1401505

Analysis Method: RSK-175

QC Batch Method: RSK175

Analysis Description: VOA (GC) RSK175

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: R3485302-1

Matrix: Water

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/23/19 12:59	
Ethane	ug/L	<4.07	13.0	4.07	12/23/19 12:59	
Ethene	ug/L	<4.26	13.0	4.26	12/23/19 12:59	

LABORATORY CONTROL SAMPLE & LCSD: R3485302-4

R3485302-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	65.4	65.3	96.5	96.3	85.0-115	0.153	20	
Ethane	ug/L	129	123	125	95.3	96.9	85.0-115	1.61	20	
Ethene	ug/L	127	118	120	92.9	94.5	85.0-115	1.68	20	

SAMPLE DUPLICATE: R3485302-2

Parameter	Units	L1172290-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	75.7	81.9	7.87	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3485302-3

Parameter	Units	L1173455-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	42.8	47.3	9.99	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

QC Batch: 650559 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3498419 Matrix: Water
 Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/30/19 12:12	

LABORATORY CONTROL SAMPLE: 3498420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.3	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498421 3498422

Parameter	Units	10502824002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.0	5.2	100	104	80-120	3	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 650546 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3498372 Matrix: Water
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/23/19 15:38	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/23/19 15:38	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/23/19 15:38	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/23/19 15:38	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/23/19 15:38	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/23/19 15:38	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/23/19 15:38	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/23/19 15:38	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/23/19 15:38	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/23/19 15:38	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/23/19 15:38	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/23/19 15:38	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/23/19 15:38	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/23/19 15:38	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/23/19 15:38	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/23/19 15:38	

LABORATORY CONTROL SAMPLE: 3498373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	981	98	80-120	
Arsenic, Dissolved	ug/L	1000	1010	101	80-120	
Barium, Dissolved	ug/L	1000	1010	101	80-120	
Beryllium, Dissolved	ug/L	1000	1020	102	80-120	
Cadmium, Dissolved	ug/L	1000	1040	104	80-120	
Chromium, Dissolved	ug/L	1000	1000	100	80-120	
Cobalt, Dissolved	ug/L	1000	1010	101	80-120	
Copper, Dissolved	ug/L	1000	988	99	80-120	
Lead, Dissolved	ug/L	1000	1020	102	80-120	
Molybdenum, Dissolved	ug/L	1000	994	99	80-120	
Nickel, Dissolved	ug/L	1000	1010	101	80-120	
Selenium, Dissolved	ug/L	1000	1040	104	80-120	
Silver, Dissolved	ug/L	500	497	99	80-120	
Thallium, Dissolved	ug/L	1000	1000	100	80-120	
Vanadium, Dissolved	ug/L	1000	999	100	80-120	
Zinc, Dissolved	ug/L	1000	1040	104	80-120	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Parameter	Units	10502379001		3498374		3498375		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1020	1000	102	100	75-125	2	20			
Arsenic, Dissolved	ug/L	35.9	1000	1000	1090	1070	105	103	75-125	2	20			
Barium, Dissolved	ug/L	460	1000	1000	1500	1480	104	102	75-125	2	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1060	1040	106	104	75-125	2	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1020	996	102	100	75-125	2	20			
Chromium, Dissolved	ug/L	0.93J	1000	1000	1030	1010	103	100	75-125	2	20			
Cobalt, Dissolved	ug/L	1.1J	1000	1000	1010	988	101	99	75-125	2	20			
Copper, Dissolved	ug/L	1.3J	1000	1000	1070	1040	107	104	75-125	3	20			
Lead, Dissolved	ug/L	2.5J	1000	1000	1000	980	100	98	75-125	2	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1020	1000	102	100	75-125	2	20			
Nickel, Dissolved	ug/L	1.9J	1000	1000	1000	982	100	98	75-125	2	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1070	1040	107	104	75-125	3	20			
Silver, Dissolved	ug/L	<0.40	500	500	529	518	106	104	75-125	2	20			
Thallium, Dissolved	ug/L	6.4J	1000	1000	971	952	96	95	75-125	2	20			
Vanadium, Dissolved	ug/L	3.1J	1000	1000	1040	1020	104	102	75-125	2	20			
Zinc, Dissolved	ug/L	9.8J	1000	1000	1020	996	101	99	75-125	2	20			

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

QC Batch: 651652 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006, 10502824007

METHOD BLANK: 3504385 Matrix: Water
 Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006, 10502824007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/24/19 22:10	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/24/19 22:10	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/24/19 22:10	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/24/19 22:10	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/24/19 22:10	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/24/19 22:10	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/24/19 22:10	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/24/19 22:10	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/24/19 22:10	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/24/19 22:10	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/24/19 22:10	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/24/19 22:10	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/24/19 22:10	
Acetone	ug/L	<9.2	20.0	9.2	12/24/19 22:10	
Acrolein	ug/L	<3.2	40.0	3.2	12/24/19 22:10	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/24/19 22:10	
Benzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/24/19 22:10	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/24/19 22:10	
Bromoform	ug/L	<0.80	4.0	0.80	12/24/19 22:10	
Bromomethane	ug/L	<1.8	4.0	1.8	12/24/19 22:10	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/24/19 22:10	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/24/19 22:10	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

METHOD BLANK: 3504385

Matrix: Water

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006, 10502824007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Chloroethane	ug/L	<0.49	1.0	0.49	12/24/19 22:10	
Chloroform	ug/L	<0.45	4.0	0.45	12/24/19 22:10	
Chloromethane	ug/L	<0.48	4.0	0.48	12/24/19 22:10	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/24/19 22:10	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/24/19 22:10	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/24/19 22:10	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/24/19 22:10	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/24/19 22:10	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Naphthalene	ug/L	<0.48	1.0	0.48	12/24/19 22:10	
o-Xylene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Styrene	ug/L	<0.19	0.50	0.19	12/24/19 22:10	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/24/19 22:10	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/24/19 22:10	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/24/19 22:10	
Toluene	ug/L	<0.083	0.50	0.083	12/24/19 22:10	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/24/19 22:10	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/24/19 22:10	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/24/19 22:10	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/24/19 22:10	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/24/19 22:10	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/24/19 22:10	
1,2-Dichloroethane-d4 (S)	%	112	75-136		12/24/19 22:10	
4-Bromofluorobenzene (S)	%	105	75-125		12/24/19 22:10	
Toluene-d8 (S)	%	106	75-125		12/24/19 22:10	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	25.1	125	68-141	
1,1,1-Trichloroethane	ug/L	20	21.5	107	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	24.8	124	73-125	
1,1,2-Trichloroethane	ug/L	20	22.6	113	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	27.2	136	69-132	L3
1,1-Dichloroethane	ug/L	20	24.2	121	73-125	
1,1-Dichloroethene	ug/L	20	24.0	120	71-126	
1,1-Dichloropropene	ug/L	20	20.2	101	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.1	115	72-126	
1,2,3-Trichloropropane	ug/L	20	24.5	122	75-126	
1,2,4-Trichlorobenzene	ug/L	20	23.2	116	71-134	
1,2,4-Trimethylbenzene	ug/L	20	25.2	126	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	56.4	113	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	23.6	118	75-129	
1,2-Dichlorobenzene	ug/L	20	23.2	116	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	42.7	107	74-125	N2
1,2-Dichloropropane	ug/L	20	22.6	113	75-125	
1,3,5-Trimethylbenzene	ug/L	20	25.1	125	75-127	
1,3-Dichlorobenzene	ug/L	20	22.5	113	75-126	
1,3-Dichloropropane	ug/L	20	22.5	113	75-125	
1,4-Dichlorobenzene	ug/L	20	21.3	106	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	398	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.4	97	72-128	
2,2-Dichloropropane	ug/L	20	19.3	96	65-138	
2-Butanone (MEK)	ug/L	100	97.9	98	59-144	
2-Chlorotoluene	ug/L	20	25.8	129	75-127	L3
2-Hexanone	ug/L	100	115	115	73-134	
4-Chlorotoluene	ug/L	20	25.3	126	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	62-141	
Acetone	ug/L	100	94.3	94	60-137	
Acrolein	ug/L	200	291	145	60-141	CH,L3
Acrylonitrile	ug/L	200	234	117	75-129	
Benzene	ug/L	20	21.8	109	73-125	
Bromobenzene	ug/L	20	21.8	109	73-125	
Bromochloromethane	ug/L	20	19.5	98	75-135	
Bromodichloromethane	ug/L	20	22.2	111	75-125	
Bromoform	ug/L	20	22.2	111	67-136	
Bromomethane	ug/L	20	22.7	114	30-150	
Carbon disulfide	ug/L	20	23.7	118	47-137	
Carbon tetrachloride	ug/L	20	22.4	112	75-125	
Chlorobenzene	ug/L	20	22.3	111	75-125	
Chloroethane	ug/L	20	21.7	109	63-136	
Chloroform	ug/L	20	20.4	102	73-128	
Chloromethane	ug/L	20	21.3	106	55-130	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	75-125	
cis-1,3-Dichloropropene	ug/L	20	23.7	119	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	22.0	110	75-125	
Dibromomethane	ug/L	20	21.3	106	75-125	
Dichlorodifluoromethane	ug/L	20	22.1	111	63-132	
Dichlorofluoromethane	ug/L	20	21.8	109	68-127	
Diisopropyl ether	ug/L	20	24.7	124	71-131	
Ethyl-tert-butyl ether	ug/L	20	22.4	112	75-125	
Ethylbenzene	ug/L	20	23.2	116	75-125	
Hexachloro-1,3-butadiene	ug/L	20	25.6	128	72-134	
Isopropylbenzene (Cumene)	ug/L	20	24.3	122	75-125	
m&p-Xylene	ug/L	40	52.2	131	75-126 L3	
Methyl-tert-butyl ether	ug/L	20	24.0	120	75-125	
Methylene Chloride	ug/L	20	24.4	122	70-125	
n-Butylbenzene	ug/L	20	25.7	128	75-126 L3	
n-Propylbenzene	ug/L	20	26.3	132	73-127 L3	
Naphthalene	ug/L	20	21.9	110	63-128	
o-Xylene	ug/L	20	23.2	116	75-128	
p-Isopropyltoluene	ug/L	20	25.6	128	75-125 L3	
sec-Butylbenzene	ug/L	20	25.8	129	75-126 L3	
Styrene	ug/L	20	23.5	117	75-125	
tert-Amylmethyl ether	ug/L	20	21.3	106	75-125	
tert-Butyl Alcohol	ug/L	200	227	114	75-130	
tert-Butylbenzene	ug/L	20	25.5	127	75-131	
Tetrachloroethene	ug/L	20	24.2	121	74-125	
Tetrahydrofuran	ug/L	200	163	81	64-138	
Toluene	ug/L	20	22.3	111	74-125	
trans-1,2-Dichloroethene	ug/L	20	23.3	116	68-128	
trans-1,3-Dichloropropene	ug/L	20	22.8	114	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.6	99	60-127	
Trichloroethene	ug/L	20	24.5	123	75-127	
Trichlorofluoromethane	ug/L	20	23.1	115	72-133	
Vinyl acetate	ug/L	20	23.1	115	61-129	
Vinyl chloride	ug/L	20	23.4	117	75-128	
Xylene (Total)	ug/L	60	75.4	126	75-125 LS	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504387 3504388

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502648001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	24.4	23.6	122	118	75-140	3	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	26.7	23.2	134	116	74-136	14	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	24.9	22.3	124	112	66-134	11	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	21.8	21.1	109	106	75-126	3	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3504387		3504388							
Parameter	Units	10502648001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.4	27.6	137	138	65-146	1	30
1,1-Dichloroethane	ug/L	<0.17	20	20	23.7	22.5	119	112	68-132	6	30
1,1-Dichloroethene	ug/L	<0.16	20	20	25.0	23.3	125	117	66-139	7	30
1,1-Dichloropropene	ug/L	<0.20	20	20	27.2	20.6	136	103	67-134	28	30 M1
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	23.1	22.3	116	111	67-129	4	30
1,2,3-Trichloropropane	ug/L	<0.26	20	20	24.5	22.2	123	111	69-128	10	30
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.8	22.4	114	112	65-140	2	30
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.3	25.5	126	128	71-133	1	30
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	54.9	51.9	110	104	54-138	6	30
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	22.9	22.2	114	111	68-125	3	30
1,2-Dichlorobenzene	ug/L	<0.14	20	20	22.0	23.3	110	116	74-136	6	30
1,2-Dichloroethane	ug/L	<0.22	20	20	20.1	20.1	101	100	68-125	0	30
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	45.7	41.2	114	103	71-126	10	30 N2
1,2-Dichloropropane	ug/L	<0.16	20	20	22.5	21.6	113	108	67-125	4	30
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	26.0	25.7	130	128	68-137	1	30
1,3-Dichlorobenzene	ug/L	<0.16	20	20	22.9	23.1	114	115	75-131	1	30
1,3-Dichloropropane	ug/L	<0.070	20	20	22.2	21.5	111	108	71-125	3	30
1,4-Dichlorobenzene	ug/L	<0.17	20	20	21.2	21.7	106	109	74-126	3	30
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	388	396	97	99	68-125	2	30
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	25.1	18.7	125	94	54-129	29	30
2,2-Dichloropropane	ug/L	<0.17	20	20	24.4	20.2	122	101	69-139	19	30
2-Butanone (MEK)	ug/L	<0.99	100	100	130	89.8	130	90	54-144	37	30 R1
2-Chlorotoluene	ug/L	<0.16	20	20	26.5	26.8	133	134	75-134	1	30
2-Hexanone	ug/L	<0.88	100	100	115	110	115	110	58-137	5	30
4-Chlorotoluene	ug/L	<0.13	20	20	25.5	25.8	127	129	72-133	1	30
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	115	109	115	109	60-129	6	30
Acetone	ug/L	<9.2	100	100	95.5	91.6	95	92	62-132	4	30
Acrolein	ug/L	<3.2	200	200	210	202	105	101	30-150	4	30 CH
Acrylonitrile	ug/L	<0.91	200	200	232	214	116	107	68-125	8	30
Benzene	ug/L	<0.10	20	20	24.2	21.3	121	107	68-125	13	30
Bromobenzene	ug/L	<0.21	20	20	21.7	21.9	109	109	73-126	1	30
Bromochloromethane	ug/L	<0.27	20	20	22.9	20.2	115	101	66-143	13	30
Bromodichloromethane	ug/L	<0.22	20	20	22.6	22.2	113	111	74-125	2	30
Bromoform	ug/L	<0.80	20	20	21.8	20.9	109	104	64-134	4	30
Bromomethane	ug/L	<1.8	20	20	21.8	21.0	109	105	30-150	4	30
Carbon disulfide	ug/L	<0.19	20	20	25.3	22.4	126	112	43-147	12	30
Carbon tetrachloride	ug/L	<0.19	20	20	27.9	24.3	140	121	71-143	14	30
Chlorobenzene	ug/L	<0.17	20	20	21.7	21.3	108	107	75-125	2	30
Chloroethane	ug/L	<0.49	20	20	22.5	20.5	112	102	75-129	9	30
Chloroform	ug/L	<0.45	20	20	24.1	20.7	121	104	66-132	15	30
Chloromethane	ug/L	<0.48	20	20	21.9	21.0	110	105	53-137	4	30
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	23.0	19.7	115	99	67-133	15	30
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	21.4	20.6	107	103	66-125	4	30

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Parameter	Units	10502648001		3504387		3504388		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	21.3	21.1	106	106	62-132	1	30			
Dibromomethane	ug/L	<0.16	20	20	21.1	19.8	105	99	67-125	6	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	23.6	22.6	118	113	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	22.0	20.6	110	103	70-131	6	30			
Diisopropyl ether	ug/L	<0.13	20	20	23.4	22.7	117	114	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	23.2	20.5	116	103	66-128	12	30			
Ethylbenzene	ug/L	<0.14	20	20	22.9	23.1	114	116	74-126	1	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	27.0	22.2	135	111	68-143	20	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	25.0	25.8	125	129	74-130	3	30			
m&p-Xylene	ug/L	<0.31	40	40	51.1	52.5	128	131	69-132	3	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.4	21.0	107	105	65-131	2	30			
Methylene Chloride	ug/L	<0.98	20	20	22.2	21.6	111	108	57-125	3	30			
n-Butylbenzene	ug/L	<0.24	20	20	26.2	24.9	131	125	71-131	5	30			
n-Propylbenzene	ug/L	<0.10	20	20	27.1	27.5	136	137	67-138	1	30			
Naphthalene	ug/L	<0.48	20	20	21.7	21.9	109	109	60-130	1	30			
o-Xylene	ug/L	<0.16	20	20	23.4	23.2	117	116	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	25.1	25.4	126	127	72-133	1	30			
sec-Butylbenzene	ug/L	<0.15	20	20	26.8	26.2	134	131	73-134	2	30			
Styrene	ug/L	<0.19	20	20	22.6	21.9	113	110	72-125	3	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	21.7	19.9	108	100	67-125	9	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	206	209	103	104	64-137	1	30			
tert-Butylbenzene	ug/L	<0.15	20	20	26.3	26.2	132	131	70-143	0	30			
Tetrachloroethene	ug/L	<0.17	20	20	23.9	25.2	119	126	72-129	5	30			
Tetrahydrofuran	ug/L	<2.2	200	200	210	184	105	92	66-128	13	30			
Toluene	ug/L	<0.083	20	20	22.1	21.3	110	106	73-125	4	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	22.7	21.4	113	107	62-137	6	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	21.6	21.4	108	107	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.6	43.7	97	87	45-128	11	30			
Trichloroethene	ug/L	<0.15	20	20	24.5	23.9	123	119	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	23.1	21.8	116	109	75-139	6	30			
Vinyl acetate	ug/L	<1.1	20	20	21.0	18.7	105	93	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	24.0	22.4	120	112	68-146	7	30			
Xylene (Total)	ug/L	<0.31	60	60	74.4	75.7	124	126	67-137	2	30			
1,2-Dichloroethane-d4 (S)	%						105	99	75-136					
4-Bromofluorobenzene (S)	%						105	101	75-125					
Toluene-d8 (S)	%						97	97	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 651816 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502824001

METHOD BLANK: 3505369 Matrix: Water
Associated Lab Samples: 10502824001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	12/26/19 10:56	

LABORATORY CONTROL SAMPLE & LCSD: 3505370 3505371

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	43.2	42.8	108	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505409 3505410

Parameter	Units	10502790001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	579000 ug/L	40	40	621	626	105	118	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505411 3505412

Parameter	Units	10502809001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	39.9	40	40	81.8	80.3	105	101	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 651932 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3505709 Matrix: Water
Associated Lab Samples: 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	12/30/19 10:19	

LABORATORY CONTROL SAMPLE & LCSD: 3505710 3505711

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.6	42.0	107	105	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505712 3505713

Parameter	Units	10502824002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	218	40	40	261	263	108	112	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505714 3505715

Parameter	Units	10502824003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	216	40	40	262	260	115	109	80-120	1	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

QC Batch: 651411

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3503223

Matrix: Water

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/23/19 11:29	

LABORATORY CONTROL SAMPLE: 3503224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	102	80-120	

SAMPLE DUPLICATE: 3503225

Parameter	Units	10502800001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	208	203	2	5	

SAMPLE DUPLICATE: 3503226

Parameter	Units	10502803003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	804	804	0	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 169400 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 768668 Matrix: Water
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/20/19 12:19	

LABORATORY CONTROL SAMPLE: 768669

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.20	99	90-110	

MATRIX SPIKE SAMPLE: 768671

Parameter	Units	10502824001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	<0.031	0.2	0.18	89	75-125	D3

SAMPLE DUPLICATE: 768670

Parameter	Units	10502824001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.031	<0.031		20	D3

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 650361 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3497220 Matrix: Water
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/19/19 08:39	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/19/19 08:39	
Sulfate	mg/L	0.48J	1.2	0.28	12/19/19 08:39	

LABORATORY CONTROL SAMPLE: 3497221

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.4	99	90-110	
Nitrate as N	mg/L	1	0.98	98	90-110	
Sulfate	mg/L	12.5	12.2	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497222 3497223

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502781002 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	29.9J	625	625	625	914	920	141	142	90-110	1	20	M6
Nitrate as N	mg/L	2.2J	50	50	50	69.9	70.4	135	136	90-110	1	20	M6
Sulfate	mg/L	2040	625	625	625	2880	2870	134	132	90-110	0	20	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497232 3497233

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502784001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	38.4	12.5	12.5	12.5	50.9	50.0	100	93	90-110	2	20	
Nitrate as N	mg/L	1.3	1	1	1	2.6	2.5	132	124	90-110	3	20	M1
Sulfate	mg/L	34.9	12.5	12.5	12.5	47.7	46.8	103	95	90-110	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 652014 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502824001, 10502824002

METHOD BLANK: 3505958 Matrix: Water
Associated Lab Samples: 10502824001, 10502824002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/27/19 12:53	FS

LABORATORY CONTROL SAMPLE: 3505959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.1	107	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505960 3505961

Parameter	Units	10502824001		3505961		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.								
Nitrogen, NO2 plus NO3	mg/L	0.19	1	1	1.2	1.2	106	103	90-110	2	20	FS	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505962 3505963

Parameter	Units	10502824002		3505963		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.								
Nitrogen, NO2 plus NO3	mg/L	2.0	1	1	3.0	3.3	106	129	90-110	7	20	FS,M1	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 652015 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502824003, 10502824004

METHOD BLANK: 3505965 Matrix: Water
Associated Lab Samples: 10502824003, 10502824004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/27/19 13:29	

LABORATORY CONTROL SAMPLE: 3505966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505967 3505968

Parameter	Units	10502824003		3505967		3505968		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Nitrogen, NO2 plus NO3	mg/L	2.3	5	5	7.7	7.8	107	108	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505969 3505970

Parameter	Units	10502824004		3505969		3505970		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Nitrogen, NO2 plus NO3	mg/L	0.18	1	1	1.3	1.2	112	102	90-110	8	20 M1	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 652018 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502824005, 10502824006

METHOD BLANK: 3505980 Matrix: Water
Associated Lab Samples: 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/27/19 14:05	FS

LABORATORY CONTROL SAMPLE: 3505981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	104	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505982 3505983

Parameter	Units	10503189005		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	0.94	0.93	94	93	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505984 3505985

Parameter	Units	10503189006		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.42	1	1	1.5	1.5	108	108	90-110	1	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

QC Batch: 650833 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 3499827 Matrix: Water
Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/20/19 10:19	

LABORATORY CONTROL SAMPLE: 3499828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	300	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499829 3499830

Parameter	Units	10502418001		10502418002		10502418003		10502418004		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	256	258	100	101	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499831 3499832

Parameter	Units	10502418002		10502418003		10502418004		10502418005		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	244	244	98	97	90-110	0	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

QC Batch: 181329

Analysis Method: SM 5310C

QC Batch Method: SM 5310C

Analysis Description: 5310C TOC

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

METHOD BLANK: 716987

Matrix: Water

Associated Lab Samples: 10502824001, 10502824002, 10502824003, 10502824004, 10502824005, 10502824006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/19/19 15:29	

LABORATORY CONTROL SAMPLE: 716988

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	25.4	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 716989 716990

Parameter	Units	716989		716990		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503038001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	ND	25	25	27.6	27.8	109	110	80-120	1	20

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
FS	The sample was filtered in the laboratory prior to analysis.
H1	Analysis conducted outside the recognized method holding time.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
LS	Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analytes used in the calculated result.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
R1	RPD value was outside control limits.

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

ANALYTE QUALIFIERS

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502824

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502824001	MW27-GW-121619	RSK175	1401505	RSK-175	1401505
10502824002	MW30-GW-121619	RSK175	1401505	RSK-175	1401505
10502824003	MW29-GW-121619	RSK175	1401505	RSK-175	1401505
10502824004	MW5D-GW-121619	RSK175	1401505	RSK-175	1401505
10502824005	MW31-GW-121619	RSK175	1401505	RSK-175	1401505
10502824006	MW32-GW-121619	RSK175	1401505	RSK-175	1401505
10502824001	MW27-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824002	MW30-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824003	MW29-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824004	MW5D-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824005	MW31-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824006	MW32-GW-121619	EPA 3010	650546	EPA 6010D	650830
10502824001	MW27-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824002	MW30-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824003	MW29-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824004	MW5D-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824005	MW31-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824006	MW32-GW-121619	EPA 7470A	650559	EPA 7470A	650876
10502824001	MW27-GW-121619	EPA 8260B	651652		
10502824002	MW30-GW-121619	EPA 8260B	651652		
10502824003	MW29-GW-121619	EPA 8260B	651652		
10502824004	MW5D-GW-121619	EPA 8260B	651652		
10502824005	MW31-GW-121619	EPA 8260B	651652		
10502824006	MW32-GW-121619	EPA 8260B	651652		
10502824007	TB1-121619	EPA 8260B	651652		
10502824001	MW27-GW-121619	SM 2320B	651816		
10502824002	MW30-GW-121619	SM 2320B	651932		
10502824003	MW29-GW-121619	SM 2320B	651932		
10502824004	MW5D-GW-121619	SM 2320B	651932		
10502824005	MW31-GW-121619	SM 2320B	651932		
10502824006	MW32-GW-121619	SM 2320B	651932		
10502824001	MW27-GW-121619	SM 2540C	651411		
10502824002	MW30-GW-121619	SM 2540C	651411		
10502824003	MW29-GW-121619	SM 2540C	651411		
10502824004	MW5D-GW-121619	SM 2540C	651411		
10502824005	MW31-GW-121619	SM 2540C	651411		
10502824006	MW32-GW-121619	SM 2540C	651411		
10502824001	MW27-GW-121619	SM 4500-S-2 D	169400		
10502824002	MW30-GW-121619	SM 4500-S-2 D	169400		
10502824003	MW29-GW-121619	SM 4500-S-2 D	169400		
10502824004	MW5D-GW-121619	SM 4500-S-2 D	169400		
10502824005	MW31-GW-121619	SM 4500-S-2 D	169400		
10502824006	MW32-GW-121619	SM 4500-S-2 D	169400		
10502824001	MW27-GW-121619	EPA 300.0	650361		
10502824002	MW30-GW-121619	EPA 300.0	650361		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502824

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502824003	MW29-GW-121619	EPA 300.0	650361		
10502824004	MW5D-GW-121619	EPA 300.0	650361		
10502824005	MW31-GW-121619	EPA 300.0	650361		
10502824006	MW32-GW-121619	EPA 300.0	650361		
10502824001	MW27-GW-121619	EPA 353.2	652014		
10502824002	MW30-GW-121619	EPA 353.2	652014		
10502824003	MW29-GW-121619	EPA 353.2	652015		
10502824004	MW5D-GW-121619	EPA 353.2	652015		
10502824005	MW31-GW-121619	EPA 353.2	652018		
10502824006	MW32-GW-121619	EPA 353.2	652018		
10502824001	MW27-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824002	MW30-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824003	MW29-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824004	MW5D-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824005	MW31-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824006	MW32-GW-121619	EPA 410.4	650833	EPA 410.4	650995
10502824001	MW27-GW-121619	SM 5310C	181329		
10502824002	MW30-GW-121619	SM 5310C	181329		
10502824003	MW29-GW-121619	SM 5310C	181329		
10502824004	MW5D-GW-121619	SM 5310C	181329		
10502824005	MW31-GW-121619	SM 5310C	181329		
10502824006	MW32-GW-121619	SM 5310C	181329		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page : <u> 1 </u> Of <u> 1 </u>
Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh	Regulatory Agency
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email:	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone: Fax:	Purchase Order # PEDD# 1497	Face Quote: Contract# 9900758938	
Requested Due Date: 10 Day Standard	Project Name: Freeman WA-Cenex Harvest Lease	Face Project Manager: Jennifer Gross	State / Location
	Project #: 1497	Face Profile #: 36447 / 4	WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9/, -) Sample Ids must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analyses Test	Y/N	Requested Analysis Filtered (Y/N)	MS/MSD Requested									
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Y	Y															
1	MW27-GW-121619	WT	G	WTG	G	12/16/19	0945	-	13	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X			001		
2	MW30-GW-121619	WT	G	WTG	G	12/16/19	1030	-	13	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X			002	
3	MW29-GW-121619	WT	G	WTG	G	12/16/19	1100	-	13	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X			003	
4	MW5D-GW-121619	WT	G	WTG	G	12/16/19	1215	-	12	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X			004	
5	MW31-GW-121619	WT	G	WTG	G	12/16/19	1330	-	12	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X			005	
6	MW32-GW-121619	WT	G	WTG	G	12/16/19	1415	-	12	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X			006	
7	TB1-121619	WT	G	WTG	G	12/16/19	0700	-	3					X			X														007	
8																																
9																																
10																																
11																																
12																																

WO#: 10502824



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
Short hold analyses are in bold	<i>KLSC / Jacobs</i>	12/16/19	1500	<i>[Signature]</i> / PACE	12/17/19	0900	0.7	Y	Y	Y	
*Field filtered by client							0.2				

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>Karla Savage</i>				
SIGNATURE of SAMPLER:	<i>[Signature]</i>	DATE Signed:	12/16/19		



Document Name:
Sample Condition Upon Receipt Form

Document No.:
F-MN-L-213-rev.30

Document Revised: 14Nov2019
Page 1 of 1

Pace Analytical Services -
Minneapolis

Sample Condition Upon Receipt

Client Name: UPRR

Project #: **WO# : 10502824**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number:

PM: JMG Due Date: 01/02/20
CLIENT: UPRR_Jacobs

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.6 0.7</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container
Correction Factor: <u>10.1</u>	Cooler Temp Corrected w/temp blank: <u>0.7 0.2</u> °C	

USDA Regulated Soil: N/A, water sample/Other: _____ Date/Initials of Person Examining Contents: 12/17/19 CMY

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-7:1/</u> <u>1-7:1/</u> <u>1-7:1/</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Res. Chlorine <u>0-6 Roll 203619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>237173</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ Field Data Required? Yes No


Comments/Resolution: _____

Project Manager Review:

Note: Whenever there is a discrepancy affecting No hold, incorrect preservative, out of temp, incorrect containers) _____ Date: 12/17/19

compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of

Labeled by: CMY
 Page 69 of 76

	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																		
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																		
			<table border="1"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp												
No Temp Blank																					
Read Temp	Corrected Temp	Average Temp																			

Tracking Number/Temperature			
4934	3733	2240	0.7
4934	3733	2239	0.2

Other Issues		
Issue Type:	Container Type	# of Containers
Sample ID		

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/17/2019 Results Requested By: 1/2/2020

Workorder: 10502824

Workorder Name: Freeman,WA-Cenex Harvest Lease

Report To		Subcontract To				Requested Analysis																														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042				<div style="display: flex; justify-content: space-between;"> 5632354 / 5310 TOC LAB USE ONLY </div>																														
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix													Preserved Containers																		
																		H2SO4	DG99																	
1	MW27-GW-121619	PS	12/16/2019 09:45	10502824001	Water													2																		
2	MW30-GW-121619	PS	12/16/2019 10:30	10502824002	Water													2																		
3	MW29-GW-121619	PS	12/16/2019 11:00	10502824003	Water													2																		
4	MW5D-GW-121619	PS	12/16/2019 12:15	10502824004	Water													2																		
5	MW31-GW-121619	PS	12/16/2019 13:30	10502824005	Water	2																														
6	MW32-GW-121619	PS	12/16/2019 14:15	10502824006	Water	2																														
												Comments																								
Transfers	Released By	Date/Time	Received By	Date/Time																																
1	<i>[Signature]</i>	12/17/19 1455	<i>[Signature]</i>	12/18/19 1345																																
2																																				
3																																				
Cooler Temperature on Receipt		0.3 °C	Custody Seal		(Y) or N	Received on Ice		(Y) or N	Samples Intact										(Y) or N																	

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace Mpls Project #: _____

WO# : 12139486
PM: RK1 Due Date: 01/02/20
CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No **Optional:** Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.0 Cooler Temp Corrected °C: 0.3 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: Bm 12/18/19

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Laura Ferrer Date: 12/18/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

20135155



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
Cert. Needed: Yes No

Workorder: 10502824

Workorder Name: Freeman, WA-Cenex Harvest Lease

Owner Received Date:

12/17/2019

Results Requested By: 1/2/2020

Report To: Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Subcontract To: Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333	Requested Analysis: WO# : 20135155 20135155
--	--	---

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers										LAB USE ONLY				
						1	2	3	4	5	6	7	8	9	10					
1	MW27-GW-121619	PS	12/16/2019 09:45	10502824001	Water	1													X	
2	MW30-GW-121619	PS	12/16/2019 10:30	10502824002	Water	1													X	
3	MW29-GW-121619	PS	12/16/2019 11:00	10502824003	Water	1													X	
4	MW5D-GW-121619	PS	12/16/2019 12:15	10502824004	Water	1													X	
5	MW31-GW-121619	PS	12/16/2019 13:30	10502824005	Water	1													X	
6	MW32-GW-121619	PS	12/16/2019 14:15	10502824006	Water	1													X	

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/17/19 1350	<i>[Signature]</i>		
2	<i>[Signature]</i>		<i>[Signature]</i>	12/18 1045	
3					

Cooler Temperature on Receipt 0.7 °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverland Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Re
Projec

WO#: 20135155

PM: CMM

Due Date: 01/02/20

CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL

USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/18/19 [signature]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

D246

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No
 Owner Received Date: 12/17/2019 Results Requested By: 1/2/2020

Pace Analytical
 www.pacelabs.com

Workorder: 10502824 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To	Subcontract To	Requested Analysis																	
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace Analytical National 12065 Lebanon Rd. Mt. Juliet, TN 37122 615-773-9710																		
							Preserved Containers							5644436 / RSK-175					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HCl VG9H													LAB USE ONLY
1	MW27-GW-121619	PS	12/16/2019 09:45	10502824001	Water	3													
2	MW30-GW-121619	PS	12/16/2019 10:30	10502824002	Water	3													L172013-01
3	MW29-GW-121619	PS	12/16/2019 11:00	10502824003	Water	3													02
4	MW5D-GW-121619	PS	12/16/2019 12:15	10502824004	Water	2													03
5	MW31-GW-121619	PS	12/16/2019 13:30	10502824005	Water	2													04
6	MW32-GW-121619	PS	12/16/2019 14:15	10502824006	Water	2													05
																			06

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	ale Pace	12/17/19	Harley M	12/18/19 1000	Methan, ethane, ethene
2					
3					

Cooler Temperature on Receipt <u>0.8°C</u>	Custody Seal <u>Y</u> or N	Received on Ice <u>Y</u> or N	Samples Intact <u>Y</u> or N
--	----------------------------	-------------------------------	------------------------------

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

0.5 + 3 = 0.8
ASm

1320 7518 518

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	PACETWA	
Cooler Received/Opened On:	12/18/19	Temperature: 0.8
Received By:	Hailey Melson	
Signature:	<i>Hailey Melson</i>	

Receipt Check List			
	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable		/	
VOA Zero headspace?		/	
Preservation Correct / Checked?		/	

December 31, 2019

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

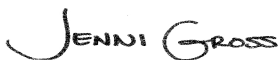
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
---	--

Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
---	--

Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
--	---

Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Pace Analytical Services National

Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364
Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975

New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502955001	TB1-121719	Water	12/17/19 07:00	12/18/19 08:50
10502955002	MW34-GW-121719	Water	12/17/19 10:15	12/18/19 08:50
10502955003	MW33-GW-121719	Water	12/17/19 11:45	12/18/19 08:50
10502955004	W26-GW-121719	Water	12/17/19 14:45	12/18/19 08:50

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10502955001	TB1-121719	EPA 8260B	DS2	83	PASI-M
10502955002	MW34-GW-121719	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502955003	MW33-GW-121719	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10502955004	W26-GW-121719	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10502955002	MW34-GW-121719					
EPA 6010D	Barium, Dissolved	38.5	ug/L	10.0	12/27/19 11:15	
EPA 6010D	Beryllium, Dissolved	0.23J	ug/L	5.0	12/27/19 11:15	
EPA 6010D	Cobalt, Dissolved	5.6J	ug/L	10.0	12/27/19 11:15	
EPA 6010D	Molybdenum, Dissolved	37.2	ug/L	15.0	12/27/19 11:15	
EPA 6010D	Nickel, Dissolved	6.1J	ug/L	20.0	12/27/19 11:15	
EPA 6010D	Vanadium, Dissolved	3.2J	ug/L	15.0	12/27/19 11:15	
EPA 6010D	Zinc, Dissolved	8.8J	ug/L	20.0	12/27/19 11:15	
SM 2320B	Alkalinity, Total as CaCO3	248	mg/L	5.0	12/30/19 11:15	
SM 2540C	Total Dissolved Solids	406	mg/L	10.0	12/24/19 10:34	
EPA 300.0	Chloride	9.2	mg/L	1.2	12/20/19 11:23	M1
EPA 300.0	Nitrate as N	0.044J	mg/L	0.10	12/20/19 11:23	M1
EPA 300.0	Sulfate	94.4	mg/L	1.2	12/20/19 11:23	M1
SM 5310C	Total Organic Carbon	1.6	mg/L	1.0	12/20/19 19:40	
10502955003	MW33-GW-121719					
EPA 6010D	Arsenic, Dissolved	4.2J	ug/L	20.0	12/27/19 11:27	
EPA 6010D	Barium, Dissolved	46.3	ug/L	10.0	12/27/19 11:27	
EPA 6010D	Beryllium, Dissolved	0.16J	ug/L	5.0	12/27/19 11:27	
EPA 6010D	Cobalt, Dissolved	2.6J	ug/L	10.0	12/27/19 11:27	
EPA 6010D	Lead, Dissolved	3.0J	ug/L	10.0	12/27/19 11:27	
EPA 6010D	Molybdenum, Dissolved	7.0J	ug/L	15.0	12/27/19 11:27	
EPA 6010D	Nickel, Dissolved	2.5J	ug/L	20.0	12/27/19 11:27	
EPA 6010D	Thallium, Dissolved	5.9J	ug/L	20.0	12/27/19 11:27	
EPA 6010D	Vanadium, Dissolved	4.1J	ug/L	15.0	12/27/19 11:27	
SM 2320B	Alkalinity, Total as CaCO3	128	mg/L	5.0	12/30/19 11:23	
SM 2540C	Total Dissolved Solids	227	mg/L	10.0	12/24/19 10:34	
EPA 300.0	Chloride	24.5	mg/L	1.2	12/20/19 12:01	M1
EPA 300.0	Nitrate as N	0.22	mg/L	0.10	12/20/19 12:01	M1
EPA 300.0	Sulfate	9.4	mg/L	1.2	12/20/19 12:01	M1
EPA 353.2	Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	12/27/19 13:47	
SM 5310C	Total Organic Carbon	2.3	mg/L	1.0	12/20/19 19:53	
10502955004	W26-GW-121719					
EPA 6010D	Barium, Dissolved	6.2J	ug/L	10.0	12/27/19 11:29	
EPA 6010D	Vanadium, Dissolved	6.7J	ug/L	15.0	12/27/19 11:29	
EPA 6010D	Zinc, Dissolved	79.2	ug/L	20.0	12/27/19 11:29	
EPA 8260B	Carbon tetrachloride	30.4	ug/L	0.50	12/25/19 04:58	
EPA 8260B	Chloroform	2.5J	ug/L	4.0	12/25/19 04:58	
SM 2320B	Alkalinity, Total as CaCO3	165	mg/L	5.0	12/30/19 11:43	
SM 2540C	Total Dissolved Solids	275	mg/L	10.0	12/24/19 10:34	
EPA 300.0	Chloride	4.1	mg/L	1.2	12/21/19 19:20	
EPA 300.0	Nitrate as N	3.0	mg/L	0.10	12/21/19 19:20	
EPA 300.0	Sulfate	6.7	mg/L	1.2	12/21/19 19:20	
EPA 353.2	Nitrogen, NO2 plus NO3	2.1	mg/L	0.50	12/27/19 14:26	
SM 5310C	Total Organic Carbon	0.66J	mg/L	1.0	12/20/19 20:06	

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

4 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 651652

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3504386)
 - Acrolein
- MS (Lab ID: 3504387)
 - Acrolein
- MSD (Lab ID: 3504388)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3504386)
 - 1,1,2-Trichlorotrifluoroethane
 - 2-Chlorotoluene
 - Acrolein
 - m&p-Xylene
 - n-Butylbenzene
 - n-Propylbenzene
 - p-Isopropyltoluene

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- sec-Butylbenzene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651652

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502648001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3504387)
 - 1,1-Dichloropropene

R1: RPD value was outside control limits.

- MSD (Lab ID: 3504388)
 - 2-Butanone (MEK)

Additional Comments:

Analyte Comments:

QC Batch: 651652

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3504385)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3504386)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3504387)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3504388)
 - 1,2-Dichloroethene (Total)
- MW33-GW-121719 (Lab ID: 10502955003)
 - 1,2-Dichloroethene (Total)
- MW34-GW-121719 (Lab ID: 10502955002)
 - 1,2-Dichloroethene (Total)
- TB1-121719 (Lab ID: 10502955001)
 - 1,2-Dichloroethene (Total)
- W26-GW-121719 (Lab ID: 10502955004)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3504385)
 - Dichlorofluoromethane
- LCS (Lab ID: 3504386)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: December 31, 2019

Analyte Comments:

QC Batch: 651652

- MS (Lab ID: 3504387)
 - Dichlorofluoromethane
- MSD (Lab ID: 3504388)
 - Dichlorofluoromethane
- MW33-GW-121719 (Lab ID: 10502955003)
 - Dichlorofluoromethane
- MW34-GW-121719 (Lab ID: 10502955002)
 - Dichlorofluoromethane
- TB1-121719 (Lab ID: 10502955001)
 - Dichlorofluoromethane
- W26-GW-121719 (Lab ID: 10502955004)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 651544

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 3503921)
- Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 650716

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502955002,10502955003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3498953)
 - Chloride
 - Nitrate as N
 - Sulfate
- MS (Lab ID: 3498955)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3498954)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3498956)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: December 31, 2019

General Information:

3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: TB1-121719 **Lab ID: 10502955001** Collected: 12/17/19 07:00 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/24/19 23:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/24/19 23:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 23:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/24/19 23:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 23:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/24/19 23:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/24/19 23:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 23:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/24/19 23:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/24/19 23:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/24/19 23:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 23:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/24/19 23:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/24/19 23:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/24/19 23:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/24/19 23:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:22	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/24/19 23:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/24/19 23:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/24/19 23:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/24/19 23:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/24/19 23:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/24/19 23:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/24/19 23:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/24/19 23:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/24/19 23:22	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/24/19 23:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/24/19 23:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/24/19 23:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/24/19 23:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/24/19 23:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/24/19 23:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/24/19 23:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/24/19 23:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/24/19 23:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/24/19 23:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/24/19 23:22	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/24/19 23:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/24/19 23:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/24/19 23:22	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: TB1-121719 **Lab ID: 10502955001** Collected: 12/17/19 07:00 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/24/19 23:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/24/19 23:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/24/19 23:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/24/19 23:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/24/19 23:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/24/19 23:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/24/19 23:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/24/19 23:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/24/19 23:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/24/19 23:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/24/19 23:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/24/19 23:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/24/19 23:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/24/19 23:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/24/19 23:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/24/19 23:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/24/19 23:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/24/19 23:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/24/19 23:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/24/19 23:22	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/24/19 23:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/24/19 23:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/24/19 23:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/24/19 23:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/24/19 23:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/24/19 23:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/24/19 23:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 23:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/24/19 23:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/24/19 23:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/24/19 23:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/24/19 23:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/24/19 23:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/24/19 23:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/24/19 23:22	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/24/19 23:22	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/24/19 23:22	460-00-4	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: MW34-GW-121719 **Lab ID: 10502955002** Collected: 12/17/19 10:15 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:34	12/23/19 13:34	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:34	12/23/19 13:34	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:34	12/23/19 13:34	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/19/19 13:30	12/27/19 11:15	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/19/19 13:30	12/27/19 11:15	7440-38-2	
Barium, Dissolved	38.5	ug/L	10.0	0.60	1	12/19/19 13:30	12/27/19 11:15	7440-39-3	
Beryllium, Dissolved	0.23J	ug/L	5.0	0.12	1	12/19/19 13:30	12/27/19 11:15	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/19/19 13:30	12/27/19 11:15	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/19/19 13:30	12/27/19 11:15	7440-47-3	
Cobalt, Dissolved	5.6J	ug/L	10.0	0.50	1	12/19/19 13:30	12/27/19 11:15	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/19/19 13:30	12/27/19 11:15	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/19/19 13:30	12/27/19 11:15	7439-92-1	
Molybdenum, Dissolved	37.2	ug/L	15.0	3.8	1	12/19/19 13:30	12/27/19 11:15	7439-98-7	
Nickel, Dissolved	6.1J	ug/L	20.0	1.1	1	12/19/19 13:30	12/27/19 11:15	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/19/19 13:30	12/27/19 11:15	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/19/19 13:30	12/27/19 11:15	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/19/19 13:30	12/27/19 11:15	7440-28-0	
Vanadium, Dissolved	3.2J	ug/L	15.0	0.43	1	12/19/19 13:30	12/27/19 11:15	7440-62-2	
Zinc, Dissolved	8.8J	ug/L	20.0	6.3	1	12/19/19 13:30	12/27/19 11:15	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 16:31	12/27/19 22:56	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 04:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 04:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 04:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 04:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 04:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 04:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 04:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 04:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 04:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:10	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: **MW34-GW-121719** Lab ID: **10502955002** Collected: 12/17/19 10:15 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 04:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 04:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 04:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 04:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 04:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 04:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 04:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 04:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 04:10	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 04:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 04:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 04:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 04:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 04:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 04:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 04:10	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 04:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 04:10	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 04:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 04:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 04:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 04:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 04:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 04:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 04:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 04:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 04:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 04:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 04:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 04:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 04:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 04:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 04:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 04:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 04:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 04:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 04:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 04:10	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

Sample: MW34-GW-121719 **Lab ID: 10502955002** Collected: 12/17/19 10:15 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 04:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 04:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 04:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 04:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 04:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%	75-136		1		12/25/19 04:10	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/25/19 04:10	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/25/19 04:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	248	mg/L	5.0	2.0	1		12/30/19 11:15		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	406	mg/L	10.0	5.0	1		12/24/19 10:34		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/21/19 14:09	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	9.2	mg/L	1.2	0.12	1		12/20/19 11:23	16887-00-6	M1
Nitrate as N	0.044J	mg/L	0.10	0.012	1		12/20/19 11:23	14797-55-8	M1
Sulfate	94.4	mg/L	1.2	0.28	1		12/20/19 11:23	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/27/19 13:46		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:24		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.6	mg/L	1.0	0.39	1		12/20/19 19:40	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: MW33-GW-121719 Lab ID: 10502955003 Collected: 12/17/19 11:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:37	12/23/19 13:37	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:37	12/23/19 13:37	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:37	12/23/19 13:37	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/19/19 13:30	12/27/19 11:27	7440-36-0	
Arsenic, Dissolved	4.2J	ug/L	20.0	3.8	1	12/19/19 13:30	12/27/19 11:27	7440-38-2	
Barium, Dissolved	46.3	ug/L	10.0	0.60	1	12/19/19 13:30	12/27/19 11:27	7440-39-3	
Beryllium, Dissolved	0.16J	ug/L	5.0	0.12	1	12/19/19 13:30	12/27/19 11:27	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/19/19 13:30	12/27/19 11:27	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/19/19 13:30	12/27/19 11:27	7440-47-3	
Cobalt, Dissolved	2.6J	ug/L	10.0	0.50	1	12/19/19 13:30	12/27/19 11:27	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/19/19 13:30	12/27/19 11:27	7440-50-8	
Lead, Dissolved	3.0J	ug/L	10.0	2.0	1	12/19/19 13:30	12/27/19 11:27	7439-92-1	
Molybdenum, Dissolved	7.0J	ug/L	15.0	3.8	1	12/19/19 13:30	12/27/19 11:27	7439-98-7	
Nickel, Dissolved	2.5J	ug/L	20.0	1.1	1	12/19/19 13:30	12/27/19 11:27	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/19/19 13:30	12/27/19 11:27	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/19/19 13:30	12/27/19 11:27	7440-22-4	
Thallium, Dissolved	5.9J	ug/L	20.0	5.5	1	12/19/19 13:30	12/27/19 11:27	7440-28-0	
Vanadium, Dissolved	4.1J	ug/L	15.0	0.43	1	12/19/19 13:30	12/27/19 11:27	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/19/19 13:30	12/27/19 11:27	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 16:31	12/27/19 22:58	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 04:34	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 04:34	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:34	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 04:34	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:34	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:34	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:34	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 04:34	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:34	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 04:34	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:34	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:34	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 04:34	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 04:34	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:34	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:34	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 04:34	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 04:34	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:34	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:34	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: MW33-GW-121719 **Lab ID: 10502955003** Collected: 12/17/19 11:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 04:34	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:34	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 04:34	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 04:34	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 04:34	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 04:34	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:34	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 04:34	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 04:34	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 04:34	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 04:34	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 04:34	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 04:34	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:34	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:34	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 04:34	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 04:34	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 04:34	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 04:34	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 04:34	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 04:34	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:34	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 04:34	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 04:34	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 04:34	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 04:34	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 04:34	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 04:34	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 04:34	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 04:34	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 04:34	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:34	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:34	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 04:34	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 04:34	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 04:34	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 04:34	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 04:34	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:34	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 04:34	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 04:34	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 04:34	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 04:34	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 04:34	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 04:34	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 04:34	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: MW33-GW-121719 **Lab ID: 10502955003** Collected: 12/17/19 11:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:34	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:34	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:34	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 04:34	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:34	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:34	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:34	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:34	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 04:34	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 04:34	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:34	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:34	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 04:34	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 04:34	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/25/19 04:34	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 04:34	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 04:34	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	128	mg/L	5.0	2.0	1		12/30/19 11:23		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	227	mg/L	10.0	5.0	1		12/24/19 10:34		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/21/19 14:24	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	24.5	mg/L	1.2	0.12	1		12/20/19 12:01	16887-00-6	M1
Nitrate as N	0.22	mg/L	0.10	0.012	1		12/20/19 12:01	14797-55-8	M1
Sulfate	9.4	mg/L	1.2	0.28	1		12/20/19 12:01	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.17	mg/L	0.10	0.018	1		12/27/19 13:47		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:24		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	2.3	mg/L	1.0	0.39	1		12/20/19 19:53	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: **W26-GW-121719** Lab ID: **10502955004** Collected: 12/17/19 14:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/23/19 13:39	12/23/19 13:39	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/23/19 13:39	12/23/19 13:39	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/23/19 13:39	12/23/19 13:39	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/19/19 13:30	12/27/19 11:29	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/19/19 13:30	12/27/19 11:29	7440-38-2	
Barium, Dissolved	6.2J	ug/L	10.0	0.60	1	12/19/19 13:30	12/27/19 11:29	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/19/19 13:30	12/27/19 11:29	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/19/19 13:30	12/27/19 11:29	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/19/19 13:30	12/27/19 11:29	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/19/19 13:30	12/27/19 11:29	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/19/19 13:30	12/27/19 11:29	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/19/19 13:30	12/27/19 11:29	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/19/19 13:30	12/27/19 11:29	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/19/19 13:30	12/27/19 11:29	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/19/19 13:30	12/27/19 11:29	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/19/19 13:30	12/27/19 11:29	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/19/19 13:30	12/27/19 11:29	7440-28-0	
Vanadium, Dissolved	6.7J	ug/L	15.0	0.43	1	12/19/19 13:30	12/27/19 11:29	7440-62-2	
Zinc, Dissolved	79.2	ug/L	20.0	6.3	1	12/19/19 13:30	12/27/19 11:29	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 16:31	12/27/19 23:00	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 04:58	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 04:58	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:58	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 04:58	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:58	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 04:58	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:58	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 04:58	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:58	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 04:58	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:58	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:58	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 04:58	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 04:58	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:58	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 04:58	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 04:58	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 04:58	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:58	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:58	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: W26-GW-121719 **Lab ID: 10502955004** Collected: 12/17/19 14:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 04:58	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:58	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 04:58	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 04:58	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 04:58	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 04:58	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:58	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 04:58	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 04:58	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 04:58	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 04:58	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 04:58	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 04:58	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:58	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 04:58	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 04:58	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 04:58	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 04:58	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 04:58	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 04:58	75-15-0	
Carbon tetrachloride	30.4	ug/L	0.50	0.19	1		12/25/19 04:58	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:58	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 04:58	75-00-3	
Chloroform	2.5J	ug/L	4.0	0.45	1		12/25/19 04:58	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 04:58	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 04:58	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 04:58	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 04:58	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 04:58	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 04:58	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 04:58	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 04:58	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:58	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 04:58	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 04:58	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 04:58	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 04:58	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 04:58	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 04:58	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 04:58	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 04:58	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 04:58	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 04:58	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 04:58	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 04:58	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 04:58	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Sample: W26-GW-121719 **Lab ID: 10502955004** Collected: 12/17/19 14:45 Received: 12/18/19 08:50 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:58	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 04:58	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 04:58	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 04:58	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 04:58	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 04:58	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 04:58	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:58	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 04:58	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 04:58	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 04:58	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 04:58	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 04:58	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 04:58	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%	75-136		1		12/25/19 04:58	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 04:58	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/25/19 04:58	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	165	mg/L	5.0	2.0	1		12/30/19 11:43		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	275	mg/L	10.0	5.0	1		12/24/19 10:34		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/21/19 14:24	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	4.1	mg/L	1.2	0.12	1		12/21/19 19:20	16887-00-6	
Nitrate as N	3.0	mg/L	0.10	0.012	1		12/21/19 19:20	14797-55-8	
Sulfate	6.7	mg/L	1.2	0.28	1		12/21/19 19:20	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	2.1	mg/L	0.50	0.088	5		12/27/19 14:26		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/19/19 13:34	12/20/19 10:24		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.66J	mg/L	1.0	0.39	1		12/20/19 20:06	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

QC Batch: 1401505 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: R3485302-1 Matrix: Water

Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/23/19 12:59	
Ethane	ug/L	<4.07	13.0	4.07	12/23/19 12:59	
Ethene	ug/L	<4.26	13.0	4.26	12/23/19 12:59	

LABORATORY CONTROL SAMPLE & LCSD: R3485302-4 R3485302-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	65.4	65.3	96.5	96.3	85.0-115	0.153	20	
Ethane	ug/L	129	123	125	95.3	96.9	85.0-115	1.61	20	
Ethene	ug/L	127	118	120	92.9	94.5	85.0-115	1.68	20	

SAMPLE DUPLICATE: R3485302-2

Parameter	Units	L1172290-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	75.7	81.9	7.87	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3485302-3

Parameter	Units	L1173455-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	42.8	47.3	9.99	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 652097 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3506322 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/27/19 22:46	

LABORATORY CONTROL SAMPLE: 3506323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	4.7	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3506324 3506325

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502955004 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury, Dissolved	ug/L	<0.093	5	5	5	4.9	4.8	98	95	80-120	3	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 650786 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3499660 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/27/19 11:12	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/27/19 11:12	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/27/19 11:12	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/27/19 11:12	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/27/19 11:12	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/27/19 11:12	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/27/19 11:12	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/27/19 11:12	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/27/19 11:12	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/27/19 11:12	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/27/19 11:12	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/27/19 11:12	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/27/19 11:12	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/27/19 11:12	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/27/19 11:12	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/27/19 11:12	

LABORATORY CONTROL SAMPLE: 3499661

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	987	99	80-120	
Arsenic, Dissolved	ug/L	1000	999	100	80-120	
Barium, Dissolved	ug/L	1000	997	100	80-120	
Beryllium, Dissolved	ug/L	1000	1010	101	80-120	
Cadmium, Dissolved	ug/L	1000	1030	103	80-120	
Chromium, Dissolved	ug/L	1000	993	99	80-120	
Cobalt, Dissolved	ug/L	1000	994	99	80-120	
Copper, Dissolved	ug/L	1000	980	98	80-120	
Lead, Dissolved	ug/L	1000	1000	100	80-120	
Molybdenum, Dissolved	ug/L	1000	988	99	80-120	
Nickel, Dissolved	ug/L	1000	994	99	80-120	
Selenium, Dissolved	ug/L	1000	1020	102	80-120	
Silver, Dissolved	ug/L	500	498	100	80-120	
Thallium, Dissolved	ug/L	1000	980	98	80-120	
Vanadium, Dissolved	ug/L	1000	990	99	80-120	
Zinc, Dissolved	ug/L	1000	1010	101	80-120	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Parameter	Units	10502955002		3499662		3499663		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1030	1000	102	100	75-125	2	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1030	1040	103	103	75-125	0	20			
Barium, Dissolved	ug/L	38.5	1000	1000	1040	1050	100	101	75-125	1	20			
Beryllium, Dissolved	ug/L	0.23J	1000	1000	1030	1030	103	103	75-125	1	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1020	1020	102	102	75-125	0	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	999	1000	100	100	75-125	1	20			
Cobalt, Dissolved	ug/L	5.6J	1000	1000	987	991	98	99	75-125	0	20			
Copper, Dissolved	ug/L	<1.2	1000	1000	998	998	100	100	75-125	0	20			
Lead, Dissolved	ug/L	<2.0	1000	1000	999	1010	100	101	75-125	1	20			
Molybdenum, Dissolved	ug/L	37.2	1000	1000	1040	1050	100	101	75-125	1	20			
Nickel, Dissolved	ug/L	6.1J	1000	1000	986	992	98	99	75-125	1	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1040	1040	104	104	75-125	0	20			
Silver, Dissolved	ug/L	<0.40	500	500	508	509	102	102	75-125	0	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	986	983	98	98	75-125	0	20			
Vanadium, Dissolved	ug/L	3.2J	1000	1000	1010	1010	101	101	75-125	0	20			
Zinc, Dissolved	ug/L	8.8J	1000	1000	1010	1020	100	101	75-125	1	20			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

QC Batch: 651652 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10502955001, 10502955002, 10502955003, 10502955004

METHOD BLANK: 3504385 Matrix: Water
Associated Lab Samples: 10502955001, 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/24/19 22:10	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/24/19 22:10	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/24/19 22:10	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/24/19 22:10	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/24/19 22:10	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/24/19 22:10	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/24/19 22:10	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/24/19 22:10	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/24/19 22:10	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/24/19 22:10	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/24/19 22:10	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/24/19 22:10	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/24/19 22:10	
Acetone	ug/L	<9.2	20.0	9.2	12/24/19 22:10	
Acrolein	ug/L	<3.2	40.0	3.2	12/24/19 22:10	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/24/19 22:10	
Benzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/24/19 22:10	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/24/19 22:10	
Bromoform	ug/L	<0.80	4.0	0.80	12/24/19 22:10	
Bromomethane	ug/L	<1.8	4.0	1.8	12/24/19 22:10	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/24/19 22:10	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/24/19 22:10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

METHOD BLANK: 3504385 Matrix: Water
Associated Lab Samples: 10502955001, 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Chloroethane	ug/L	<0.49	1.0	0.49	12/24/19 22:10	
Chloroform	ug/L	<0.45	4.0	0.45	12/24/19 22:10	
Chloromethane	ug/L	<0.48	4.0	0.48	12/24/19 22:10	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/24/19 22:10	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/24/19 22:10	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/24/19 22:10	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/24/19 22:10	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/24/19 22:10	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Naphthalene	ug/L	<0.48	1.0	0.48	12/24/19 22:10	
o-Xylene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Styrene	ug/L	<0.19	0.50	0.19	12/24/19 22:10	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/24/19 22:10	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/24/19 22:10	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/24/19 22:10	
Toluene	ug/L	<0.083	0.50	0.083	12/24/19 22:10	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/24/19 22:10	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/24/19 22:10	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/24/19 22:10	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/24/19 22:10	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/24/19 22:10	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/24/19 22:10	
1,2-Dichloroethane-d4 (S)	%	112	75-136		12/24/19 22:10	
4-Bromofluorobenzene (S)	%	105	75-125		12/24/19 22:10	
Toluene-d8 (S)	%	106	75-125		12/24/19 22:10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	25.1	125	68-141	
1,1,1-Trichloroethane	ug/L	20	21.5	107	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	24.8	124	73-125	
1,1,2-Trichloroethane	ug/L	20	22.6	113	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	27.2	136	69-132	L3
1,1-Dichloroethane	ug/L	20	24.2	121	73-125	
1,1-Dichloroethene	ug/L	20	24.0	120	71-126	
1,1-Dichloropropene	ug/L	20	20.2	101	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.1	115	72-126	
1,2,3-Trichloropropane	ug/L	20	24.5	122	75-126	
1,2,4-Trichlorobenzene	ug/L	20	23.2	116	71-134	
1,2,4-Trimethylbenzene	ug/L	20	25.2	126	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	56.4	113	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	23.6	118	75-129	
1,2-Dichlorobenzene	ug/L	20	23.2	116	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	42.7	107	74-125	N2
1,2-Dichloropropane	ug/L	20	22.6	113	75-125	
1,3,5-Trimethylbenzene	ug/L	20	25.1	125	75-127	
1,3-Dichlorobenzene	ug/L	20	22.5	113	75-126	
1,3-Dichloropropane	ug/L	20	22.5	113	75-125	
1,4-Dichlorobenzene	ug/L	20	21.3	106	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	398	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.4	97	72-128	
2,2-Dichloropropane	ug/L	20	19.3	96	65-138	
2-Butanone (MEK)	ug/L	100	97.9	98	59-144	
2-Chlorotoluene	ug/L	20	25.8	129	75-127	L3
2-Hexanone	ug/L	100	115	115	73-134	
4-Chlorotoluene	ug/L	20	25.3	126	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	62-141	
Acetone	ug/L	100	94.3	94	60-137	
Acrolein	ug/L	200	291	145	60-141	CH,L3
Acrylonitrile	ug/L	200	234	117	75-129	
Benzene	ug/L	20	21.8	109	73-125	
Bromobenzene	ug/L	20	21.8	109	73-125	
Bromochloromethane	ug/L	20	19.5	98	75-135	
Bromodichloromethane	ug/L	20	22.2	111	75-125	
Bromoform	ug/L	20	22.2	111	67-136	
Bromomethane	ug/L	20	22.7	114	30-150	
Carbon disulfide	ug/L	20	23.7	118	47-137	
Carbon tetrachloride	ug/L	20	22.4	112	75-125	
Chlorobenzene	ug/L	20	22.3	111	75-125	
Chloroethane	ug/L	20	21.7	109	63-136	
Chloroform	ug/L	20	20.4	102	73-128	
Chloromethane	ug/L	20	21.3	106	55-130	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	75-125	
cis-1,3-Dichloropropene	ug/L	20	23.7	119	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	22.0	110	75-125	
Dibromomethane	ug/L	20	21.3	106	75-125	
Dichlorodifluoromethane	ug/L	20	22.1	111	63-132	
Dichlorofluoromethane	ug/L	20	21.8	109	68-127	
Diisopropyl ether	ug/L	20	24.7	124	71-131	
Ethyl-tert-butyl ether	ug/L	20	22.4	112	75-125	
Ethylbenzene	ug/L	20	23.2	116	75-125	
Hexachloro-1,3-butadiene	ug/L	20	25.6	128	72-134	
Isopropylbenzene (Cumene)	ug/L	20	24.3	122	75-125	
m&p-Xylene	ug/L	40	52.2	131	75-126 L3	
Methyl-tert-butyl ether	ug/L	20	24.0	120	75-125	
Methylene Chloride	ug/L	20	24.4	122	70-125	
n-Butylbenzene	ug/L	20	25.7	128	75-126 L3	
n-Propylbenzene	ug/L	20	26.3	132	73-127 L3	
Naphthalene	ug/L	20	21.9	110	63-128	
o-Xylene	ug/L	20	23.2	116	75-128	
p-Isopropyltoluene	ug/L	20	25.6	128	75-125 L3	
sec-Butylbenzene	ug/L	20	25.8	129	75-126 L3	
Styrene	ug/L	20	23.5	117	75-125	
tert-Amylmethyl ether	ug/L	20	21.3	106	75-125	
tert-Butyl Alcohol	ug/L	200	227	114	75-130	
tert-Butylbenzene	ug/L	20	25.5	127	75-131	
Tetrachloroethene	ug/L	20	24.2	121	74-125	
Tetrahydrofuran	ug/L	200	163	81	64-138	
Toluene	ug/L	20	22.3	111	74-125	
trans-1,2-Dichloroethene	ug/L	20	23.3	116	68-128	
trans-1,3-Dichloropropene	ug/L	20	22.8	114	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.6	99	60-127	
Trichloroethene	ug/L	20	24.5	123	75-127	
Trichlorofluoromethane	ug/L	20	23.1	115	72-133	
Vinyl acetate	ug/L	20	23.1	115	61-129	
Vinyl chloride	ug/L	20	23.4	117	75-128	
Xylene (Total)	ug/L	60	75.4	126	75-125 LS	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504387 3504388

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502648001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	24.4	23.6	122	118	75-140	3	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	26.7	23.2	134	116	74-136	14	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	24.9	22.3	124	112	66-134	11	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	21.8	21.1	109	106	75-126	3	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3504387		3504388									
Parameter	Units	10502648001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits				
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.4	27.6	137	138	65-146	1	30		
1,1-Dichloroethane	ug/L	<0.17	20	20	23.7	22.5	119	112	68-132	6	30		
1,1-Dichloroethene	ug/L	<0.16	20	20	25.0	23.3	125	117	66-139	7	30		
1,1-Dichloropropene	ug/L	<0.20	20	20	27.2	20.6	136	103	67-134	28	30	M1	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	23.1	22.3	116	111	67-129	4	30		
1,2,3-Trichloropropane	ug/L	<0.26	20	20	24.5	22.2	123	111	69-128	10	30		
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.8	22.4	114	112	65-140	2	30		
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.3	25.5	126	128	71-133	1	30		
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	54.9	51.9	110	104	54-138	6	30		
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	22.9	22.2	114	111	68-125	3	30		
1,2-Dichlorobenzene	ug/L	<0.14	20	20	22.0	23.3	110	116	74-136	6	30		
1,2-Dichloroethane	ug/L	<0.22	20	20	20.1	20.1	101	100	68-125	0	30		
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	45.7	41.2	114	103	71-126	10	30	N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	22.5	21.6	113	108	67-125	4	30		
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	26.0	25.7	130	128	68-137	1	30		
1,3-Dichlorobenzene	ug/L	<0.16	20	20	22.9	23.1	114	115	75-131	1	30		
1,3-Dichloropropane	ug/L	<0.070	20	20	22.2	21.5	111	108	71-125	3	30		
1,4-Dichlorobenzene	ug/L	<0.17	20	20	21.2	21.7	106	109	74-126	3	30		
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	388	396	97	99	68-125	2	30		
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	25.1	18.7	125	94	54-129	29	30		
2,2-Dichloropropane	ug/L	<0.17	20	20	24.4	20.2	122	101	69-139	19	30		
2-Butanone (MEK)	ug/L	<0.99	100	100	130	89.8	130	90	54-144	37	30	R1	
2-Chlorotoluene	ug/L	<0.16	20	20	26.5	26.8	133	134	75-134	1	30		
2-Hexanone	ug/L	<0.88	100	100	115	110	115	110	58-137	5	30		
4-Chlorotoluene	ug/L	<0.13	20	20	25.5	25.8	127	129	72-133	1	30		
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	115	109	115	109	60-129	6	30		
Acetone	ug/L	<9.2	100	100	95.5	91.6	95	92	62-132	4	30		
Acrolein	ug/L	<3.2	200	200	210	202	105	101	30-150	4	30	CH	
Acrylonitrile	ug/L	<0.91	200	200	232	214	116	107	68-125	8	30		
Benzene	ug/L	<0.10	20	20	24.2	21.3	121	107	68-125	13	30		
Bromobenzene	ug/L	<0.21	20	20	21.7	21.9	109	109	73-126	1	30		
Bromochloromethane	ug/L	<0.27	20	20	22.9	20.2	115	101	66-143	13	30		
Bromodichloromethane	ug/L	<0.22	20	20	22.6	22.2	113	111	74-125	2	30		
Bromoform	ug/L	<0.80	20	20	21.8	20.9	109	104	64-134	4	30		
Bromomethane	ug/L	<1.8	20	20	21.8	21.0	109	105	30-150	4	30		
Carbon disulfide	ug/L	<0.19	20	20	25.3	22.4	126	112	43-147	12	30		
Carbon tetrachloride	ug/L	<0.19	20	20	27.9	24.3	140	121	71-143	14	30		
Chlorobenzene	ug/L	<0.17	20	20	21.7	21.3	108	107	75-125	2	30		
Chloroethane	ug/L	<0.49	20	20	22.5	20.5	112	102	75-129	9	30		
Chloroform	ug/L	<0.45	20	20	24.1	20.7	121	104	66-132	15	30		
Chloromethane	ug/L	<0.48	20	20	21.9	21.0	110	105	53-137	4	30		
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	23.0	19.7	115	99	67-133	15	30		
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	21.4	20.6	107	103	66-125	4	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Parameter	Units	10502648001		3504387		3504388		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	21.3	21.1	106	106	62-132	1	30			
Dibromomethane	ug/L	<0.16	20	20	21.1	19.8	105	99	67-125	6	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	23.6	22.6	118	113	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	22.0	20.6	110	103	70-131	6	30			
Diisopropyl ether	ug/L	<0.13	20	20	23.4	22.7	117	114	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	23.2	20.5	116	103	66-128	12	30			
Ethylbenzene	ug/L	<0.14	20	20	22.9	23.1	114	116	74-126	1	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	27.0	22.2	135	111	68-143	20	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	25.0	25.8	125	129	74-130	3	30			
m&p-Xylene	ug/L	<0.31	40	40	51.1	52.5	128	131	69-132	3	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.4	21.0	107	105	65-131	2	30			
Methylene Chloride	ug/L	<0.98	20	20	22.2	21.6	111	108	57-125	3	30			
n-Butylbenzene	ug/L	<0.24	20	20	26.2	24.9	131	125	71-131	5	30			
n-Propylbenzene	ug/L	<0.10	20	20	27.1	27.5	136	137	67-138	1	30			
Naphthalene	ug/L	<0.48	20	20	21.7	21.9	109	109	60-130	1	30			
o-Xylene	ug/L	<0.16	20	20	23.4	23.2	117	116	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	25.1	25.4	126	127	72-133	1	30			
sec-Butylbenzene	ug/L	<0.15	20	20	26.8	26.2	134	131	73-134	2	30			
Styrene	ug/L	<0.19	20	20	22.6	21.9	113	110	72-125	3	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	21.7	19.9	108	100	67-125	9	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	206	209	103	104	64-137	1	30			
tert-Butylbenzene	ug/L	<0.15	20	20	26.3	26.2	132	131	70-143	0	30			
Tetrachloroethene	ug/L	<0.17	20	20	23.9	25.2	119	126	72-129	5	30			
Tetrahydrofuran	ug/L	<2.2	200	200	210	184	105	92	66-128	13	30			
Toluene	ug/L	<0.083	20	20	22.1	21.3	110	106	73-125	4	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	22.7	21.4	113	107	62-137	6	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	21.6	21.4	108	107	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.6	43.7	97	87	45-128	11	30			
Trichloroethene	ug/L	<0.15	20	20	24.5	23.9	123	119	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	23.1	21.8	116	109	75-139	6	30			
Vinyl acetate	ug/L	<1.1	20	20	21.0	18.7	105	93	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	24.0	22.4	120	112	68-146	7	30			
Xylene (Total)	ug/L	<0.31	60	60	74.4	75.7	124	126	67-137	2	30			
1,2-Dichloroethane-d4 (S)	%						105	99	75-136					
4-Bromofluorobenzene (S)	%						105	101	75-125					
Toluene-d8 (S)	%						97	97	75-125					

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 651933 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3505716 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<2.0	5.0	2.0	12/30/19 09:38	

LABORATORY CONTROL SAMPLE & LCSD: 3505717 3505718

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	42.9	43.4	107	108	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505721 3505722

Parameter	Units	10503475003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	111	40	40	153	153	105	104	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507232 3507233

Parameter	Units	10502955004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	165	40	40	210	210	113	111	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 651544 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3503918 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/24/19 10:34	

LABORATORY CONTROL SAMPLE: 3503919

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 3503920

Parameter	Units	10502818001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2710	2750	1	5	

SAMPLE DUPLICATE: 3503921

Parameter	Units	10503087001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	173	201	15	5	D6

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 169502 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 769207 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/21/19 14:03	

LABORATORY CONTROL SAMPLE: 769208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	93	90-110	

MATRIX SPIKE SAMPLE: 769210

Parameter	Units	20135076001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.0093J	0.2	0.17	78	75-125	

SAMPLE DUPLICATE: 769209

Parameter	Units	20135076001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.0093J	0.010J		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

QC Batch: 650716 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3498951 Matrix: Water

Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/20/19 09:28	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/20/19 09:28	
Sulfate	mg/L	0.50J	1.2	0.28	12/20/19 09:28	

LABORATORY CONTROL SAMPLE: 3498952

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.3	98	90-110	
Nitrate as N	mg/L	1	1.0	101	90-110	
Sulfate	mg/L	12.5	12.1	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498953 3498954

Parameter	Units	10502955002		3498954		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Result	MSD Spike Conc.						
Chloride	mg/L	9.2	12.5	25.7	12.5	132	134	90-110	1	20	M1
Nitrate as N	mg/L	0.044J	1	1.3	1	130	131	90-110	1	20	M1
Sulfate	mg/L	94.4	12.5	102	12.5	59	65	90-110	1	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3498955 3498956

Parameter	Units	10502955003		3498956		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Result	MSD Spike Conc.						
Chloride	mg/L	24.5	12.5	40.8	12.5	131	120	90-110	3	20	M1
Nitrate as N	mg/L	0.22	1	1.6	1	140	133	90-110	5	20	M1
Sulfate	mg/L	9.4	12.5	26.3	12.5	136	126	90-110	5	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 652018 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3505980 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/27/19 14:05	FS

LABORATORY CONTROL SAMPLE: 3505981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	104	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505982 3505983

Parameter	Units	10503189005		10503189006		10503189007		10503189008		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	0.94	0.93	94	93	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505984 3505985

Parameter	Units	10503189006		10503189007		10503189008		10503189009		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.42	1	1	1.5	1.5	108	108	90-110	1	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

QC Batch: 650833 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 3499827 Matrix: Water
Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/20/19 10:19	

LABORATORY CONTROL SAMPLE: 3499828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	300	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499829 3499830

Parameter	Units	10502418001		10502418002		10502418003		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chemical Oxygen Demand	mg/L	<17.0	250	250	256	258	100	101	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3499831 3499832

Parameter	Units	10502418002		10502418003		10502418004		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Chemical Oxygen Demand	mg/L	<17.0	250	250	244	244	98	97	90-110	0	20

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

QC Batch: 181397 Analysis Method: SM 5310C
 QC Batch Method: SM 5310C Analysis Description: 5310C TOC
 Associated Lab Samples: 10502955002, 10502955003, 10502955004

METHOD BLANK: 717271 Matrix: Water
 Associated Lab Samples: 10502955002, 10502955003, 10502955004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/20/19 16:39	

LABORATORY CONTROL SAMPLE: 717272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	26.5	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717273 717274

Parameter	Units	717273		717274		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12139546001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	ND	25	25	27.2	27.2	108	108	80-120	0	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717275 717276

Parameter	Units	717275		717276		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502955004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	0.66J	25	25	27.5	27.5	107	107	80-120	0	20

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10502955

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
 ND - Not Detected at or above adjusted reporting limit.
 TNTC - Too Numerous To Count
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 PQL - Practical Quantitation Limit.
 RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
 S - Surrogate
 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
 TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
FS	The sample was filtered in the laboratory prior to analysis.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
LS	Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analytes used in the calculated result.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
R1	RPD value was outside control limits.

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10502955

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502955002	MW34-GW-121719	RSK175	1401505	RSK-175	1401505
10502955003	MW33-GW-121719	RSK175	1401505	RSK-175	1401505
10502955004	W26-GW-121719	RSK175	1401505	RSK-175	1401505
10502955002	MW34-GW-121719	EPA 3010	650786	EPA 6010D	651101
10502955003	MW33-GW-121719	EPA 3010	650786	EPA 6010D	651101
10502955004	W26-GW-121719	EPA 3010	650786	EPA 6010D	651101
10502955002	MW34-GW-121719	EPA 7470A	652097	EPA 7470A	652130
10502955003	MW33-GW-121719	EPA 7470A	652097	EPA 7470A	652130
10502955004	W26-GW-121719	EPA 7470A	652097	EPA 7470A	652130
10502955001	TB1-121719	EPA 8260B	651652		
10502955002	MW34-GW-121719	EPA 8260B	651652		
10502955003	MW33-GW-121719	EPA 8260B	651652		
10502955004	W26-GW-121719	EPA 8260B	651652		
10502955002	MW34-GW-121719	SM 2320B	651933		
10502955003	MW33-GW-121719	SM 2320B	651933		
10502955004	W26-GW-121719	SM 2320B	651933		
10502955002	MW34-GW-121719	SM 2540C	651544		
10502955003	MW33-GW-121719	SM 2540C	651544		
10502955004	W26-GW-121719	SM 2540C	651544		
10502955002	MW34-GW-121719	SM 4500-S-2 D	169502		
10502955003	MW33-GW-121719	SM 4500-S-2 D	169502		
10502955004	W26-GW-121719	SM 4500-S-2 D	169502		
10502955002	MW34-GW-121719	EPA 300.0	650716		
10502955003	MW33-GW-121719	EPA 300.0	650716		
10502955004	W26-GW-121719	EPA 300.0	650716		
10502955002	MW34-GW-121719	EPA 353.2	652018		
10502955003	MW33-GW-121719	EPA 353.2	652018		
10502955004	W26-GW-121719	EPA 353.2	652018		
10502955002	MW34-GW-121719	EPA 410.4	650833	EPA 410.4	650995
10502955003	MW33-GW-121719	EPA 410.4	650833	EPA 410.4	650995
10502955004	W26-GW-121719	EPA 410.4	650833	EPA 410.4	650995
10502955002	MW34-GW-121719	SM 5310C	181397		
10502955003	MW33-GW-121719	SM 5310C	181397		
10502955004	W26-GW-121719	SM 5310C	181397		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields

WO#: 10502955



10502955

Section A

Required Client Information:

Section B

Required Project Information:

Section C

Invoice Information:


Company: UPRR_Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR
Email:	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221
Phone: _____ Fax: _____	Purchase Order #: PEDD# 1497	Pace Quote: Contract# 9900758938
Requested Due Date: 10 Day Standard	Project Name: Freeman WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross
	Project #:	Pace Profile #: 36447 / 4

Regulatory Agency
State / Location
WA / Freeman

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	CODE DW WT WW P SL OL WP AR OT TS	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						ANALYSES TEST Y/N	Requested Analysis Filtered (Y/N)										MS/MSD Requested										
				DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other		Y	Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4		Nitrate-Nitrite 353.2	4500 Total Phosphorus	6010 Total Iron							
1	TB1-121719	WTG		12/17/19	0700	-	2	X		X																								001	
2	MW34-GW-121719	WTG		12/17/19	1015	-	12	X	X	X	X	X																							002
3	MW33-GW-121719	WTG		12/17/19	1145	-	12	X	X	X	X	X																							003
4	MW26-GW-121719	WTG		12/17/19	1445	-	12	X	X	X	X	X																							004
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			
11																																			
12																																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS			
	Signature	Affiliation			Signature	Affiliation			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Short hold analyses are in bold	K E G	Jacobs	12/17/19	1500	CLJ		12-13-19	8:50	0.1	Y	Y	Y
*Field filtered by client												

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Karla Savage
SIGNATURE of SAMPLER:	[Signature]
DATE Signed:	12/17/19

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 14Nov2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.30	Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt **Client Name:** UPRR Jacobs **Project #:** **WO# : 10502955**

Courier: Fed Ex UPS USPS Client
 Pace SpeeDee Commercial See Exceptions

Tracking Number: 4934 3733 2206

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Biological Tissue Frozen?** Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ **Temp Blank?** Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) **Type of Ice:** Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <u>0.2</u> °C	Average Corrected Temp (no temp blank only): <input type="checkbox"/> See Exceptions
Correction Factor: <u>0.1</u>	Cooler Temp Corrected w/temp blank: <u>0.1</u> °C	<input type="checkbox"/> 1 Container

USDA Regulated Soil: N/A, water sample/Other: _____ **Date/Initials of Person Examining Contents:** 12/17/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-3</u> <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <u>9/1</u> <input checked="" type="checkbox"/> H ₂ SO ₄ <u>11/11/11</u> <input type="checkbox"/> Zinc Acetate <u>11/11</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A JMG 121819	Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/>
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine <u>0-6 Roll 203619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>236659</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 121819

Note: Whenever there is a discrepancy affecting North Carolina samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

WO# : 12139544

PM: RK1 Due Date: 01/03/20
CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No **Optional:** Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.1 Cooler Temp Corrected °C: 1.4 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: Bm 12/19/19

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Lavonia Ferrier

Date: 12/19/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

WO#: 20135506



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes
 Owner Received Date: 12/18/2019 Results Requested By: 1/3/2020

Workorder: 10502955 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To	Subcontract To	Requested Analysis																				
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333																					
		6636267 / 4500 Sulfide																				
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NaOH	ATI	AC	Preserved Containers				LAB USE ONLY									
1	MW34-GW-121719	PS	12/17/2019 10:15	10502955002	Water	1																
2	MW33-GW-121719	PS	12/17/2019 11:45	10502955003	Water	1																
3	W26-GW-121719	PS	12/17/2019 14:45	10502955004	Water	1																
4																						
5																						

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>W. Price</i>	<i>12/18/19 1345</i>	<i>Fred Esp</i>		
2		<i>12/19/19 1100</i>	<i>A/A</i>	<i>12/19/19 1100</i>	
3					

Cooler Temperature on Receipt 3.5 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Rec

WO# : 20135506

PM: CMM

Due Date: 01/03/20

CLIENT: PASI-MINN

Projec

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/19/19 CAL

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.



State Of Origin: WA
 Cert. Needed: Yes No
 Owner Received Date: 12/18/2019 Results Requested By: 1/3/2020

Workorder: 10502955 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To		Subcontract To				Requested Analysis																
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical National 12065 Lebanon Rd. Mt. Juliet, TN 37122 615-773-9710																				
						5644436 / RSK-175																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HCL	VG	9H														
1	MW34-GW-121719	PS	12/17/2019 10:15	10502955002	Water	2																
2	MW33-GW-121719	PS	12/17/2019 11:45	10502955003	Water	2																
3	W26-GW-121719	PS	12/17/2019 14:45	10502955004	Water	2																
4																						
5																						
Transfers		Released By	Date/Time	Received By	Date/Time	Comments																
1		<i>[Signature]</i>	12/18/19 1355			Methane, ethane, ethene																
2																						
3																						
Cooler Temperature on Receipt		1.8°C	Custody Seal <input checked="" type="checkbox"/> or N		Received on Ice <input checked="" type="checkbox"/> or N		Samples Intact <input checked="" type="checkbox"/> or N															

A098
 L1172484
 LAB USE ONLY
 -01
 -02
 -03

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

1.8 ± 0 = 1.8 ^{u4}
 AQ

RAD SCREEN: <0.5 mR/hr

Cont - 6
 FedEx - 1320 7518 3432
 mS
 12.19.19 / 0930
 (NO TRIP)

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	L1172489		
Cooler Received/Opened On: 12/19/19	Temperature:	18	
Received By: Monte Smith			
Signature: <i>Monte Smith</i>			
Receipt Check List			
	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable:			
VOA Zero headspace?		✓	
Preservation Correct / Checked?			

January 02, 2020

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

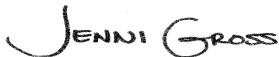
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 19, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
--	--

Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Pace Analytical Services National

Arkansas Certification #: 88-0469

California Certification #: 2932

Canada Certification #: 1461.01

Colorado Certification #: TN00003

Connecticut Certification #: PH-0197

DOD Certification: #1461.01

EPA# TN00003

Florida Certification #: E87487

Georgia DW Certification #: 923

Georgia Certification: NELAP

Idaho Certification #: TN00003

Illinois Certification #: 200008

Indiana Certification #: C-TN-01

Iowa Certification #: 364

Kansas Certification #: E-10277

Kentucky UST Certification #: 16

Kentucky Certification #: 90010

Louisiana Certification #: AI30792

Louisiana DW Certification #: LA180010

Maine Certification #: TN0002

Maryland Certification #: 324

Massachusetts Certification #: M-TN003

Michigan Certification #: 9958

Minnesota Certification #: 047-999-395

Mississippi Certification #: TN00003

Missouri Certification #: 340

Montana Certification #: CERT0086

Nebraska Certification #: NE-OS-15-05

Nevada Certification #: TN-03-2002-34

New Hampshire Certification #: 2975

New Jersey Certification #: TN002

New Mexico DW Certification

New York Certification #: 11742

North Carolina Aquatic Toxicity Certification #: 41

North Carolina Drinking Water Certification #: 21704

North Carolina Environmental Certificate #: 375

North Dakota Certification #: R-140

Ohio VAP Certification #: CL0069

Oklahoma Certification #: 9915

Oregon Certification #: TN200002

Pennsylvania Certification #: 68-02979

Rhode Island Certification #: LAO00356

South Carolina Certification #: 84004

South Dakota Certification

Tennessee DW/Chem/Micro Certification #: 2006

Texas Certification #: T 104704245-17-14

Texas Mold Certification #: LAB0152

USDA Soil Permit #: P330-15-00234

Utah Certification #: TN00003

Virginia Certification #: VT2006

Vermont Dept. of Health: ID# VT-2006

Virginia Certification #: 460132

Washington Certification #: C847

West Virginia Certification #: 233

Wisconsin Certification #: 9980939910

Wyoming UST Certification #: via A2LA 2926.01

A2LA-ISO 17025 Certification #: 1461.01

A2LA-ISO 17025 Certification #: 1461.02

AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10503189001	W20-GW-121819	Water	12/18/19 09:30	12/19/19 09:00
10503189002	MW35-GW-121819	Water	12/18/19 10:15	12/19/19 09:00
10503189003	MW36-GW-121819	Water	12/18/19 10:45	12/19/19 09:00
10503189004	MW4D-GW-121819	Water	12/18/19 11:30	12/19/19 09:00
10503189005	W26-GW-121819	Water	12/18/19 13:00	12/19/19 09:00
10503189006	MW13S-GW-121819	Water	12/18/19 13:45	12/19/19 09:00
10503189007	TB1-121819	Water	12/18/19 07:00	12/19/19 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10503189001	W20-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189002	MW35-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189003	MW36-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189004	MW4D-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189005	W26-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189006	MW13S-GW-121819	RSK-175	DAH	3	PAN
		EPA 6010D	DM	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503189007	TB1-121819	EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10503189001	W20-GW-121819					
EPA 6010D	Barium, Dissolved	27.1	ug/L	10.0	12/31/19 10:19	
EPA 6010D	Beryllium, Dissolved	0.14J	ug/L	5.0	12/31/19 10:19	
EPA 6010D	Cobalt, Dissolved	0.79J	ug/L	10.0	12/31/19 10:19	
EPA 6010D	Lead, Dissolved	2.5J	ug/L	10.0	12/31/19 10:19	
EPA 6010D	Vanadium, Dissolved	4.0J	ug/L	15.0	12/31/19 10:19	
SM 2320B	Alkalinity, Total as CaCO3	129	mg/L	5.0	12/31/19 13:10	
SM 2540C	Total Dissolved Solids	220	mg/L	10.0	12/24/19 11:26	
EPA 300.0	Chloride	1.9	mg/L	1.2	12/20/19 18:24	M1
EPA 300.0	Nitrate as N	0.21	mg/L	0.10	12/20/19 18:24	M1
EPA 300.0	Sulfate	2.9	mg/L	1.2	12/20/19 18:24	B,M1
EPA 353.2	Nitrogen, NO2 plus NO3	0.15	mg/L	0.10	12/27/19 13:51	FS
10503189002	MW35-GW-121819					
EPA 6010D	Barium, Dissolved	22.6	ug/L	10.0	12/31/19 10:52	
EPA 6010D	Beryllium, Dissolved	0.14J	ug/L	5.0	12/31/19 10:52	
EPA 6010D	Cobalt, Dissolved	0.82J	ug/L	10.0	12/31/19 10:52	
EPA 6010D	Nickel, Dissolved	1.1J	ug/L	20.0	12/31/19 10:52	
EPA 6010D	Vanadium, Dissolved	14.4J	ug/L	15.0	12/31/19 10:52	
EPA 6010D	Zinc, Dissolved	8.5J	ug/L	20.0	12/31/19 10:52	
EPA 8260B	Carbon tetrachloride	65.9	ug/L	0.50	12/25/19 05:46	
EPA 8260B	Chloroform	4.4	ug/L	4.0	12/25/19 05:46	
SM 2320B	Alkalinity, Total as CaCO3	152	mg/L	5.0	12/31/19 13:15	
SM 2540C	Total Dissolved Solids	258	mg/L	10.0	12/24/19 11:26	
EPA 300.0	Chloride	14.3	mg/L	1.2	12/20/19 18:44	
EPA 300.0	Nitrate as N	3.2	mg/L	0.10	12/20/19 18:44	
EPA 300.0	Sulfate	12.9	mg/L	1.2	12/20/19 18:44	
EPA 353.2	Nitrogen, NO2 plus NO3	2.3	mg/L	0.50	12/27/19 14:27	
SM 5310C	Total Organic Carbon	0.48J	mg/L	1.0	12/20/19 18:08	
10503189003	MW36-GW-121819					
EPA 6010D	Barium, Dissolved	25.7	ug/L	10.0	12/31/19 10:54	
EPA 6010D	Cobalt, Dissolved	0.62J	ug/L	10.0	12/31/19 10:54	
EPA 6010D	Lead, Dissolved	2.0J	ug/L	10.0	12/31/19 10:54	
EPA 6010D	Vanadium, Dissolved	9.2J	ug/L	15.0	12/31/19 10:54	
EPA 6010D	Zinc, Dissolved	32.2	ug/L	20.0	12/31/19 10:54	
EPA 8260B	Carbon tetrachloride	180	ug/L	0.50	12/25/19 06:10	
EPA 8260B	Chloroform	9.3	ug/L	4.0	12/25/19 06:10	
SM 2320B	Alkalinity, Total as CaCO3	169	mg/L	5.0	12/31/19 13:20	
SM 2540C	Total Dissolved Solids	309	mg/L	10.0	12/24/19 11:26	
EPA 300.0	Chloride	22.7	mg/L	1.2	12/20/19 17:27	
EPA 300.0	Nitrate as N	5.4	mg/L	0.10	12/20/19 17:27	
EPA 300.0	Sulfate	17.3	mg/L	1.2	12/20/19 17:27	
EPA 353.2	Nitrogen, NO2 plus NO3	3.9	mg/L	0.50	12/27/19 14:28	
SM 5310C	Total Organic Carbon	0.64J	mg/L	1.0	12/20/19 18:22	
10503189004	MW4D-GW-121819					
RSK-175	Methane	15.0	ug/L	10.0	12/27/19 11:55	
EPA 6010D	Barium, Dissolved	74.7	ug/L	10.0	12/31/19 10:55	
EPA 6010D	Chromium, Dissolved	0.90J	ug/L	10.0	12/31/19 10:55	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10503189004	MW4D-GW-121819					
EPA 6010D	Cobalt, Dissolved	2.3J	ug/L	10.0	12/31/19 10:55	
EPA 6010D	Copper, Dissolved	1.5J	ug/L	10.0	12/31/19 10:55	
EPA 6010D	Nickel, Dissolved	3.5J	ug/L	20.0	12/31/19 10:55	
EPA 6010D	Vanadium, Dissolved	8.6J	ug/L	15.0	12/31/19 10:55	
EPA 6010D	Zinc, Dissolved	7.8J	ug/L	20.0	12/31/19 10:55	
EPA 8260B	Carbon tetrachloride	7.9	ug/L	0.50	12/26/19 14:54	
EPA 8260B	Chloroform	1.3J	ug/L	4.0	12/26/19 14:54	
SM 2320B	Alkalinity, Total as CaCO3	164	mg/L	5.0	12/31/19 13:26	
SM 2540C	Total Dissolved Solids	283	mg/L	10.0	12/24/19 11:26	
SM 4500-S-2 D	Sulfide, Total	0.016J	mg/L	0.020	12/24/19 15:44	
EPA 300.0	Chloride	8.2	mg/L	1.2	12/20/19 19:03	
EPA 300.0	Nitrate as N	1.5	mg/L	0.10	12/20/19 19:03	
EPA 300.0	Sulfate	9.4	mg/L	1.2	12/20/19 19:03	
EPA 353.2	Nitrogen, NO2 plus NO3	1.3	mg/L	0.10	12/27/19 13:55	FS
SM 5310C	Total Organic Carbon	2.4	mg/L	1.0	12/20/19 18:35	
10503189005	W26-GW-121819					
RSK-175	Methane	3280	ug/L	10.0	12/27/19 11:57	
EPA 6010D	Barium, Dissolved	18.3	ug/L	10.0	12/31/19 10:57	
EPA 6010D	Cobalt, Dissolved	0.64J	ug/L	10.0	12/31/19 10:57	
EPA 6010D	Zinc, Dissolved	6.5J	ug/L	20.0	12/31/19 10:57	
SM 2320B	Alkalinity, Total as CaCO3	55.3	mg/L	5.0	12/31/19 13:32	
SM 2540C	Total Dissolved Solids	84.0	mg/L	10.0	12/24/19 11:26	
EPA 300.0	Chloride	2.7	mg/L	1.2	12/20/19 19:22	
EPA 300.0	Sulfate	0.52J	mg/L	1.2	12/20/19 19:22	B
SM 5310C	Total Organic Carbon	2.9	mg/L	1.0	12/20/19 19:13	
10503189006	MW13S-GW-121819					
EPA 6010D	Barium, Dissolved	65.0	ug/L	10.0	12/31/19 10:59	
EPA 6010D	Chromium, Dissolved	1.3J	ug/L	10.0	12/31/19 10:59	
EPA 6010D	Cobalt, Dissolved	0.52J	ug/L	10.0	12/31/19 10:59	
EPA 6010D	Lead, Dissolved	2.0J	ug/L	10.0	12/31/19 10:59	
EPA 6010D	Thallium, Dissolved	6.7J	ug/L	20.0	12/31/19 10:59	
EPA 6010D	Vanadium, Dissolved	11.8J	ug/L	15.0	12/31/19 10:59	
EPA 6010D	Zinc, Dissolved	7.4J	ug/L	20.0	12/31/19 10:59	
SM 2320B	Alkalinity, Total as CaCO3	167	mg/L	5.0	12/31/19 13:37	
SM 2540C	Total Dissolved Solids	236	mg/L	10.0	12/24/19 11:26	
EPA 300.0	Chloride	1.6	mg/L	1.2	12/20/19 19:41	
EPA 300.0	Nitrate as N	0.58	mg/L	0.10	12/20/19 19:41	
EPA 300.0	Sulfate	5.8	mg/L	1.2	12/20/19 19:41	
EPA 353.2	Nitrogen, NO2 plus NO3	0.42	mg/L	0.10	12/27/19 13:59	
SM 5310C	Total Organic Carbon	0.42J	mg/L	1.0	12/20/19 19:27	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 1403002

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): L1172974-01

P6: Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

- MS (Lab ID: R3486376-4)
 - Methane
- MSD (Lab ID: R3486376-5)
 - Methane

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

7 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 651652

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3504386)
 - Acrolein
- MS (Lab ID: 3504387)
 - Acrolein
- MSD (Lab ID: 3504388)
 - Acrolein

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3504386)
 - 1,1,2-Trichlorotrifluoroethane
 - 2-Chlorotoluene
 - Acrolein
 - m&p-Xylene
 - n-Butylbenzene
 - n-Propylbenzene
 - p-Isopropyltoluene

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 02, 2020

QC Batch: 651652

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- sec-Butylbenzene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651652

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10502648001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3504387)
 - 1,1-Dichloropropene

R1: RPD value was outside control limits.

- MSD (Lab ID: 3504388)
 - 2-Butanone (MEK)

QC Batch: 651790

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503844001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3507025)
 - Tetrachloroethene
 - cis-1,2-Dichloroethene
 - o-Xylene
- MSD (Lab ID: 3507026)
 - 2,2,4-Trimethylpentane
 - Toluene
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene

Additional Comments:

Analyte Comments:

QC Batch: 651652

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3504385)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3504386)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3504387)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3504388)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 02, 2020

Analyte Comments:

QC Batch: 651652

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MW35-GW-121819 (Lab ID: 10503189002)
 - 1,2-Dichloroethene (Total)
- MW36-GW-121819 (Lab ID: 10503189003)
 - 1,2-Dichloroethene (Total)
- W20-GW-121819 (Lab ID: 10503189001)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3504385)
 - Dichlorofluoromethane
- LCS (Lab ID: 3504386)
 - Dichlorofluoromethane
- MS (Lab ID: 3504387)
 - Dichlorofluoromethane
- MSD (Lab ID: 3504388)
 - Dichlorofluoromethane
- MW35-GW-121819 (Lab ID: 10503189002)
 - Dichlorofluoromethane
- MW36-GW-121819 (Lab ID: 10503189003)
 - Dichlorofluoromethane
- W20-GW-121819 (Lab ID: 10503189001)
 - Dichlorofluoromethane

QC Batch: 651790

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3507025)
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene
 - Tetrachloroethene
 - Trichloroethene
- MSD (Lab ID: 3507026)
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene
 - Tetrachloroethene

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3505277)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3505278)
 - 1,2-Dichloroethene (Total)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 02, 2020

Analyte Comments:

QC Batch: 651790

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MS (Lab ID: 3507025)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3507026)
 - 1,2-Dichloroethene (Total)
- MW13S-GW-121819 (Lab ID: 10503189006)
 - 1,2-Dichloroethene (Total)
- MW4D-GW-121819 (Lab ID: 10503189004)
 - 1,2-Dichloroethene (Total)
- TB1-121819 (Lab ID: 10503189007)
 - 1,2-Dichloroethene (Total)
- W26-GW-121819 (Lab ID: 10503189005)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3505277)
 - Dichlorofluoromethane
- LCS (Lab ID: 3505278)
 - Dichlorofluoromethane
- MS (Lab ID: 3507025)
 - Dichlorofluoromethane
- MSD (Lab ID: 3507026)
 - Dichlorofluoromethane
- MW13S-GW-121819 (Lab ID: 10503189006)
 - Dichlorofluoromethane
- MW4D-GW-121819 (Lab ID: 10503189004)
 - Dichlorofluoromethane
- TB1-121819 (Lab ID: 10503189007)
 - Dichlorofluoromethane
- W26-GW-121819 (Lab ID: 10503189005)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 652417

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503996001,10503996002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3507646)
 - Alkalinity, Total as CaCO₃
- MS (Lab ID: 3507648)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3507647)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3507649)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 169748

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20135800001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 770225)
- Sulfide, Total

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 651031

B: Analyte was detected in the associated method blank.

- BLANK for HBN 651031 [WETA/420 (Lab ID: 3501000)]
 - Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651031

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503189001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3501002)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3501003)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: January 02, 2020

General Information:

6 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: W20-GW-121819 **Lab ID: 10503189001** Collected: 12/18/19 09:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/27/19 11:48	12/27/19 11:48	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 11:48	12/27/19 11:48	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 11:48	12/27/19 11:48	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:19	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:19	7440-38-2	
Barium, Dissolved	27.1	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:19	7440-39-3	
Beryllium, Dissolved	0.14J	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:19	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:19	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:19	7440-47-3	
Cobalt, Dissolved	0.79J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:19	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:19	7440-50-8	
Lead, Dissolved	2.5J	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:19	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:19	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:19	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:19	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:19	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:19	7440-28-0	
Vanadium, Dissolved	4.0J	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:19	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:19	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:20	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 05:22	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 05:22	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 05:22	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 05:22	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 05:22	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 05:22	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:22	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 05:22	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 05:22	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 05:22	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:22	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:22	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 05:22	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 05:22	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 05:22	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 05:22	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 05:22	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 05:22	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 05:22	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:22	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: W20-GW-121819 **Lab ID: 10503189001** Collected: 12/18/19 09:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 05:22	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:22	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 05:22	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 05:22	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 05:22	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 05:22	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:22	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 05:22	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 05:22	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 05:22	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 05:22	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 05:22	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 05:22	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 05:22	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 05:22	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 05:22	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 05:22	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 05:22	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 05:22	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 05:22	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/25/19 05:22	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:22	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 05:22	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/25/19 05:22	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 05:22	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 05:22	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 05:22	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 05:22	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 05:22	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 05:22	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 05:22	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 05:22	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 05:22	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 05:22	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 05:22	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 05:22	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 05:22	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 05:22	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:22	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 05:22	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 05:22	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 05:22	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 05:22	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 05:22	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 05:22	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 05:22	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Sample: W20-GW-121819 **Lab ID: 10503189001** Collected: 12/18/19 09:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 05:22	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:22	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 05:22	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 05:22	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 05:22	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:22	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 05:22	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 05:22	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 05:22	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 05:22	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 05:22	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 05:22	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 05:22	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 05:22	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/25/19 05:22	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 05:22	2037-26-5	
4-Bromofluorobenzene (S)	108	%	75-125		1		12/25/19 05:22	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	129	mg/L	5.0	2.0	1		12/31/19 13:10		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	220	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/24/19 15:10	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.9	mg/L	1.2	0.12	1		12/20/19 18:24	16887-00-6	M1
Nitrate as N	0.21	mg/L	0.10	0.012	1		12/20/19 18:24	14797-55-8	M1
Sulfate	2.9	mg/L	1.2	0.28	1		12/20/19 18:24	14808-79-8	B,M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.15	mg/L	0.10	0.018	1		12/27/19 13:51		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:11		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/20/19 17:55	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW35-GW-121819 **Lab ID: 10503189002** Collected: 12/18/19 10:15 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/27/19 11:50	12/27/19 11:50	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 11:50	12/27/19 11:50	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 11:50	12/27/19 11:50	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:52	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:52	7440-38-2	
Barium, Dissolved	22.6	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:52	7440-39-3	
Beryllium, Dissolved	0.14J	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:52	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:52	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:52	7440-47-3	
Cobalt, Dissolved	0.82J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:52	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:52	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:52	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:52	7439-98-7	
Nickel, Dissolved	1.1J	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:52	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:52	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:52	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:52	7440-28-0	
Vanadium, Dissolved	14.4J	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:52	7440-62-2	
Zinc, Dissolved	8.5J	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:52	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:22	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 05:46	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 05:46	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 05:46	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 05:46	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 05:46	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 05:46	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:46	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 05:46	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 05:46	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 05:46	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:46	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:46	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 05:46	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 05:46	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 05:46	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 05:46	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 05:46	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 05:46	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 05:46	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:46	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW35-GW-121819 **Lab ID: 10503189002** Collected: 12/18/19 10:15 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 05:46	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:46	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 05:46	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 05:46	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 05:46	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 05:46	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:46	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 05:46	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 05:46	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 05:46	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 05:46	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 05:46	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 05:46	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 05:46	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 05:46	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 05:46	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 05:46	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 05:46	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 05:46	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 05:46	75-15-0	
Carbon tetrachloride	65.9	ug/L	0.50	0.19	1		12/25/19 05:46	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:46	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 05:46	75-00-3	
Chloroform	4.4	ug/L	4.0	0.45	1		12/25/19 05:46	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 05:46	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 05:46	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 05:46	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 05:46	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 05:46	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 05:46	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 05:46	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 05:46	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 05:46	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 05:46	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 05:46	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 05:46	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 05:46	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 05:46	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 05:46	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 05:46	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 05:46	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 05:46	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 05:46	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 05:46	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 05:46	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 05:46	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW35-GW-121819 **Lab ID: 10503189002** Collected: 12/18/19 10:15 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 05:46	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 05:46	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 05:46	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 05:46	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 05:46	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 05:46	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 05:46	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 05:46	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 05:46	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 05:46	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 05:46	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 05:46	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 05:46	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 05:46	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%	75-136		1		12/25/19 05:46	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 05:46	2037-26-5	
4-Bromofluorobenzene (S)	109	%	75-125		1		12/25/19 05:46	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	152	mg/L	5.0	2.0	1		12/31/19 13:15		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	258	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/24/19 15:11	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	14.3	mg/L	1.2	0.12	1		12/20/19 18:44	16887-00-6	
Nitrate as N	3.2	mg/L	0.10	0.012	1		12/20/19 18:44	14797-55-8	
Sulfate	12.9	mg/L	1.2	0.28	1		12/20/19 18:44	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	2.3	mg/L	0.50	0.088	5		12/27/19 14:27		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:11		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.48J	mg/L	1.0	0.39	1		12/20/19 18:08	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: **MW36-GW-121819** Lab ID: **10503189003** Collected: 12/18/19 10:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/27/19 11:53	12/27/19 11:53	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 11:53	12/27/19 11:53	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 11:53	12/27/19 11:53	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:54	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:54	7440-38-2	
Barium, Dissolved	25.7	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:54	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:54	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:54	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:54	7440-47-3	
Cobalt, Dissolved	0.62J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:54	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:54	7440-50-8	
Lead, Dissolved	2.0J	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:54	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:54	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:54	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:54	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:54	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:54	7440-28-0	
Vanadium, Dissolved	9.2J	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:54	7440-62-2	
Zinc, Dissolved	32.2	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:54	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:29	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/25/19 06:10	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/25/19 06:10	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 06:10	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/25/19 06:10	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 06:10	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/25/19 06:10	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/25/19 06:10	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/25/19 06:10	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 06:10	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/25/19 06:10	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 06:10	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/25/19 06:10	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/25/19 06:10	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/25/19 06:10	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 06:10	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/25/19 06:10	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/25/19 06:10	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/25/19 06:10	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/25/19 06:10	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/25/19 06:10	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: **MW36-GW-121819** Lab ID: **10503189003** Collected: 12/18/19 10:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/25/19 06:10	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 06:10	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/25/19 06:10	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/25/19 06:10	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/25/19 06:10	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/25/19 06:10	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/25/19 06:10	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/25/19 06:10	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/25/19 06:10	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/25/19 06:10	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/25/19 06:10	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/25/19 06:10	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/25/19 06:10	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/25/19 06:10	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/25/19 06:10	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/25/19 06:10	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/25/19 06:10	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/25/19 06:10	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/25/19 06:10	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/25/19 06:10	75-15-0	
Carbon tetrachloride	180	ug/L	0.50	0.19	1		12/25/19 06:10	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/25/19 06:10	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/25/19 06:10	75-00-3	
Chloroform	9.3	ug/L	4.0	0.45	1		12/25/19 06:10	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/25/19 06:10	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/25/19 06:10	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/25/19 06:10	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/25/19 06:10	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/25/19 06:10	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/25/19 06:10	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/25/19 06:10	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/25/19 06:10	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/25/19 06:10	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/25/19 06:10	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/25/19 06:10	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/25/19 06:10	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/25/19 06:10	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/25/19 06:10	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/25/19 06:10	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/25/19 06:10	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/25/19 06:10	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/25/19 06:10	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/25/19 06:10	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/25/19 06:10	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/25/19 06:10	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/25/19 06:10	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW36-GW-121819 **Lab ID: 10503189003** Collected: 12/18/19 10:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/25/19 06:10	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/25/19 06:10	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/25/19 06:10	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/25/19 06:10	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/25/19 06:10	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/25/19 06:10	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/25/19 06:10	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 06:10	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/25/19 06:10	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/25/19 06:10	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/25/19 06:10	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/25/19 06:10	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/25/19 06:10	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/25/19 06:10	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	121	%	75-136		1		12/25/19 06:10	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/25/19 06:10	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/25/19 06:10	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	169	mg/L	5.0	2.0	1		12/31/19 13:20		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	309	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/24/19 15:43	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	22.7	mg/L	1.2	0.12	1		12/20/19 17:27	16887-00-6	
Nitrate as N	5.4	mg/L	0.10	0.012	1		12/20/19 17:27	14797-55-8	
Sulfate	17.3	mg/L	1.2	0.28	1		12/20/19 17:27	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	3.9	mg/L	0.50	0.088	5		12/27/19 14:28		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:12		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.64J	mg/L	1.0	0.39	1		12/20/19 18:22	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW4D-GW-121819 **Lab ID: 10503189004** Collected: 12/18/19 11:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	15.0	ug/L	10.0	2.91	1	12/27/19 11:55	12/27/19 11:55	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 11:55	12/27/19 11:55	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 11:55	12/27/19 11:55	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:55	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:55	7440-38-2	
Barium, Dissolved	74.7	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:55	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:55	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:55	7440-43-9	
Chromium, Dissolved	0.90J	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:55	7440-47-3	
Cobalt, Dissolved	2.3J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:55	7440-48-4	
Copper, Dissolved	1.5J	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:55	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:55	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:55	7439-98-7	
Nickel, Dissolved	3.5J	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:55	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:55	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:55	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:55	7440-28-0	
Vanadium, Dissolved	8.6J	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:55	7440-62-2	
Zinc, Dissolved	7.8J	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:55	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:32	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 14:54	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 14:54	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 14:54	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 14:54	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 14:54	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 14:54	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:54	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 14:54	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 14:54	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 14:54	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:54	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:54	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 14:54	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 14:54	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 14:54	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 14:54	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 14:54	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 14:54	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 14:54	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:54	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW4D-GW-121819 **Lab ID: 10503189004** Collected: 12/18/19 11:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 14:54	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:54	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 14:54	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 14:54	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 14:54	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 14:54	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:54	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 14:54	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 14:54	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 14:54	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 14:54	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 14:54	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 14:54	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 14:54	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 14:54	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 14:54	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 14:54	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 14:54	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 14:54	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 14:54	75-15-0	
Carbon tetrachloride	7.9	ug/L	0.50	0.19	1		12/26/19 14:54	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:54	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 14:54	75-00-3	
Chloroform	1.3J	ug/L	4.0	0.45	1		12/26/19 14:54	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 14:54	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 14:54	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 14:54	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 14:54	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 14:54	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 14:54	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 14:54	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 14:54	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 14:54	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 14:54	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 14:54	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 14:54	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 14:54	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 14:54	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:54	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 14:54	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 14:54	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 14:54	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 14:54	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 14:54	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 14:54	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 14:54	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW4D-GW-121819 **Lab ID: 10503189004** Collected: 12/18/19 11:30 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 14:54	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:54	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 14:54	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 14:54	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 14:54	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:54	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 14:54	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 14:54	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 14:54	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 14:54	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 14:54	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 14:54	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 14:54	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 14:54	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	75-136		1		12/26/19 14:54	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/26/19 14:54	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/26/19 14:54	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	164	mg/L	5.0	2.0	1		12/31/19 13:26		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	283	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	0.016J	mg/L	0.020	0.0062	1		12/24/19 15:44	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	8.2	mg/L	1.2	0.12	1		12/20/19 19:03	16887-00-6	
Nitrate as N	1.5	mg/L	0.10	0.012	1		12/20/19 19:03	14797-55-8	
Sulfate	9.4	mg/L	1.2	0.28	1		12/20/19 19:03	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	1.3	mg/L	0.10	0.018	1		12/27/19 13:55		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:12		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	2.4	mg/L	1.0	0.39	1		12/20/19 18:35	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: W26-GW-121819 **Lab ID: 10503189005** Collected: 12/18/19 13:00 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	3280	ug/L	10.0	2.91	1	12/27/19 11:57	12/27/19 11:57	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 11:57	12/27/19 11:57	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 11:57	12/27/19 11:57	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:57	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:57	7440-38-2	
Barium, Dissolved	18.3	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:57	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:57	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:57	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:57	7440-47-3	
Cobalt, Dissolved	0.64J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:57	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:57	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:57	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:57	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:57	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:57	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:57	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:57	7440-28-0	
Vanadium, Dissolved	<0.43	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:57	7440-62-2	
Zinc, Dissolved	6.5J	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:57	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:34	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 15:18	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 15:18	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 15:18	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 15:18	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 15:18	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 15:18	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:18	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 15:18	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 15:18	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 15:18	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:18	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:18	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 15:18	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 15:18	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 15:18	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 15:18	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 15:18	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 15:18	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 15:18	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:18	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: W26-GW-121819 **Lab ID: 10503189005** Collected: 12/18/19 13:00 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 15:18	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:18	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 15:18	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 15:18	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 15:18	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 15:18	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:18	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 15:18	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 15:18	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 15:18	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 15:18	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 15:18	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 15:18	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 15:18	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 15:18	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 15:18	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 15:18	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 15:18	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 15:18	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 15:18	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 15:18	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:18	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 15:18	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 15:18	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 15:18	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 15:18	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 15:18	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 15:18	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 15:18	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 15:18	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 15:18	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 15:18	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 15:18	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 15:18	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 15:18	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 15:18	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 15:18	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 15:18	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:18	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 15:18	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 15:18	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 15:18	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 15:18	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 15:18	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 15:18	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 15:18	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Sample: W26-GW-121819 **Lab ID: 10503189005** Collected: 12/18/19 13:00 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 15:18	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:18	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 15:18	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 15:18	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 15:18	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:18	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 15:18	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 15:18	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 15:18	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 15:18	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 15:18	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 15:18	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 15:18	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 15:18	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	117	%	75-136		1		12/26/19 15:18	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/26/19 15:18	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		12/26/19 15:18	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	55.3	mg/L	5.0	2.0	1		12/31/19 13:32		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	84.0	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/24/19 15:44	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.7	mg/L	1.2	0.12	1		12/20/19 19:22	16887-00-6	
Nitrate as N	<0.012	mg/L	0.10	0.012	1		12/20/19 19:22	14797-55-8	
Sulfate	0.52J	mg/L	1.2	0.28	1		12/20/19 19:22	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	<0.018	mg/L	0.10	0.018	1		12/27/19 13:56		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:13		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	2.9	mg/L	1.0	0.39	1		12/20/19 19:13	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW13S-GW-121819 **Lab ID: 10503189006** Collected: 12/18/19 13:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/27/19 12:37	12/27/19 12:37	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/27/19 12:37	12/27/19 12:37	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/27/19 12:37	12/27/19 12:37	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/30/19 12:42	12/31/19 10:59	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/30/19 12:42	12/31/19 10:59	7440-38-2	
Barium, Dissolved	65.0	ug/L	10.0	0.60	1	12/30/19 12:42	12/31/19 10:59	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/30/19 12:42	12/31/19 10:59	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/30/19 12:42	12/31/19 10:59	7440-43-9	
Chromium, Dissolved	1.3J	ug/L	10.0	0.66	1	12/30/19 12:42	12/31/19 10:59	7440-47-3	
Cobalt, Dissolved	0.52J	ug/L	10.0	0.50	1	12/30/19 12:42	12/31/19 10:59	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/30/19 12:42	12/31/19 10:59	7440-50-8	
Lead, Dissolved	2.0J	ug/L	10.0	2.0	1	12/30/19 12:42	12/31/19 10:59	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/30/19 12:42	12/31/19 10:59	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/30/19 12:42	12/31/19 10:59	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/30/19 12:42	12/31/19 10:59	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/30/19 12:42	12/31/19 10:59	7440-22-4	
Thallium, Dissolved	6.7J	ug/L	20.0	5.5	1	12/30/19 12:42	12/31/19 10:59	7440-28-0	
Vanadium, Dissolved	11.8J	ug/L	15.0	0.43	1	12/30/19 12:42	12/31/19 10:59	7440-62-2	
Zinc, Dissolved	7.4J	ug/L	20.0	6.3	1	12/30/19 12:42	12/31/19 10:59	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/27/19 22:36	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 15:42	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 15:42	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 15:42	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 15:42	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 15:42	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 15:42	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:42	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 15:42	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 15:42	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 15:42	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:42	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:42	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 15:42	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 15:42	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 15:42	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 15:42	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 15:42	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 15:42	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 15:42	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:42	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: MW13S-GW-121819 **Lab ID: 10503189006** Collected: 12/18/19 13:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 15:42	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:42	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 15:42	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 15:42	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 15:42	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 15:42	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:42	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 15:42	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 15:42	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 15:42	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 15:42	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 15:42	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 15:42	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 15:42	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 15:42	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 15:42	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 15:42	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 15:42	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 15:42	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 15:42	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 15:42	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:42	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 15:42	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 15:42	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 15:42	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 15:42	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 15:42	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 15:42	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 15:42	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 15:42	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 15:42	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 15:42	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 15:42	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 15:42	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 15:42	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 15:42	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 15:42	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 15:42	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 15:42	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 15:42	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 15:42	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 15:42	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 15:42	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 15:42	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 15:42	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 15:42	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Sample: MW13S-GW-121819 **Lab ID: 10503189006** Collected: 12/18/19 13:45 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 15:42	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 15:42	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 15:42	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 15:42	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 15:42	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 15:42	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 15:42	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 15:42	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 15:42	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 15:42	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 15:42	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 15:42	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 15:42	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 15:42	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	121	%	75-136		1		12/26/19 15:42	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/26/19 15:42	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/26/19 15:42	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	167	mg/L	5.0	2.0	1		12/31/19 13:37		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	236	mg/L	10.0	5.0	1		12/24/19 11:26		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/24/19 15:45	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.6	mg/L	1.2	0.12	1		12/20/19 19:41	16887-00-6	
Nitrate as N	0.58	mg/L	0.10	0.012	1		12/20/19 19:41	14797-55-8	
Sulfate	5.8	mg/L	1.2	0.28	1		12/20/19 19:41	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.42	mg/L	0.10	0.018	1		12/27/19 13:59		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:13		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.42J	mg/L	1.0	0.39	1		12/20/19 19:27	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: TB1-121819 **Lab ID: 10503189007** Collected: 12/18/19 07:00 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 14:30	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 14:30	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 14:30	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 14:30	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 14:30	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 14:30	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:30	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 14:30	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 14:30	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 14:30	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:30	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:30	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 14:30	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 14:30	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 14:30	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 14:30	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 14:30	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 14:30	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 14:30	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:30	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 14:30	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:30	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 14:30	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 14:30	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 14:30	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 14:30	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:30	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 14:30	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 14:30	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 14:30	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 14:30	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 14:30	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 14:30	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 14:30	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 14:30	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 14:30	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 14:30	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 14:30	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 14:30	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 14:30	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 14:30	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:30	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 14:30	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 14:30	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 14:30	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 14:30	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Sample: TB1-121819 **Lab ID: 10503189007** Collected: 12/18/19 07:00 Received: 12/19/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 14:30	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 14:30	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 14:30	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 14:30	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 14:30	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 14:30	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 14:30	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 14:30	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 14:30	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 14:30	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 14:30	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 14:30	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 14:30	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 14:30	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 14:30	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 14:30	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 14:30	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 14:30	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 14:30	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 14:30	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 14:30	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 14:30	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 14:30	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 14:30	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 14:30	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 14:30	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 14:30	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 14:30	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 14:30	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 14:30	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 14:30	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 14:30	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 14:30	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 14:30	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/26/19 14:30	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/26/19 14:30	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/26/19 14:30	460-00-4	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 1403002 Analysis Method: RSK-175
QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: R3486376-1 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/27/19 11:38	
Ethane	ug/L	<4.07	13.0	4.07	12/27/19 11:38	
Ethene	ug/L	<4.26	13.0	4.26	12/27/19 11:38	

Parameter	Units	R3486376-6		R3486376-7		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
Methane	ug/L	67.8	69.5	69.0	103	102	85.0-115	0.722	20
Ethane	ug/L	129	131	129	102	100	85.0-115	1.54	20
Ethene	ug/L	127	126	124	99.2	97.6	85.0-115	1.60	20

Parameter	Units	R3486376-4		R3486376-5		% Rec	MSD	% Rec	MSD	% Rec	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Methane	ug/L	638	67.8	67.8	693	688	81.1	73.7	85.0-115	0.724	20	P6
Ethane	ug/L	59.3	129	129	220	202	125	111	85.0-115	8.53	20	MH
Ethene	ug/L	ND	127	127	156	136	123	107	85.0-115	13.7	20	MH

Parameter	Units	10503189005		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Methane	ug/L	3280	3110	5.32	20		
Ethane	ug/L	ND	<4.07	0.00	20		
Ethene	ug/L	ND	<4.26	0.00	20		

Parameter	Units	L1173019-04		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Methane	ug/L	960	999	3.98	20		
Ethane	ug/L	ND	<4.07	0.00	20		
Ethene	ug/L	ND	<4.26	0.00	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 651080 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3501359 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/27/19 22:13	

LABORATORY CONTROL SAMPLE: 3501360

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.3	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501361 3501362

Parameter	Units	10503189002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.0	4.9	100	98	80-120	2	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

QC Batch: 651058

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010

Analysis Description: 6010D Water Dissolved

Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3501277

Matrix: Water

Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/31/19 10:11	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/31/19 10:11	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/31/19 10:11	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/31/19 10:11	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/31/19 10:11	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/31/19 10:11	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/31/19 10:11	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/31/19 10:11	
Lead, Dissolved	ug/L	<2.0	10.0	2.0	12/31/19 10:11	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/31/19 10:11	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/31/19 10:11	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/31/19 10:11	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/31/19 10:11	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/31/19 10:11	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/31/19 10:11	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/31/19 10:11	

LABORATORY CONTROL SAMPLE: 3501278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1010	101	80-120	
Arsenic, Dissolved	ug/L	1000	1020	102	80-120	
Barium, Dissolved	ug/L	1000	1030	103	80-120	
Beryllium, Dissolved	ug/L	1000	1040	104	80-120	
Cadmium, Dissolved	ug/L	1000	1050	105	80-120	
Chromium, Dissolved	ug/L	1000	1020	102	80-120	
Cobalt, Dissolved	ug/L	1000	1030	103	80-120	
Copper, Dissolved	ug/L	1000	1010	101	80-120	
Lead, Dissolved	ug/L	1000	1040	104	80-120	
Molybdenum, Dissolved	ug/L	1000	1030	103	80-120	
Nickel, Dissolved	ug/L	1000	1020	102	80-120	
Selenium, Dissolved	ug/L	1000	1040	104	80-120	
Silver, Dissolved	ug/L	500	512	102	80-120	
Thallium, Dissolved	ug/L	1000	1010	101	80-120	
Vanadium, Dissolved	ug/L	1000	1020	102	80-120	
Zinc, Dissolved	ug/L	1000	1050	105	80-120	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Parameter	Units	10503189001		3501279		3501280		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony, Dissolved	ug/L	<7.0	1000	1000	1040	1020	103	102	75-125	2	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1040	1010	104	101	75-125	2	20			
Barium, Dissolved	ug/L	27.1	1000	1000	1060	1040	104	101	75-125	2	20			
Beryllium, Dissolved	ug/L	0.14J	1000	1000	1060	1030	106	103	75-125	2	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1050	1020	105	102	75-125	2	20			
Chromium, Dissolved	ug/L	<0.66	1000	1000	1030	1000	103	100	75-125	2	20			
Cobalt, Dissolved	ug/L	0.79J	1000	1000	1020	995	102	99	75-125	3	20			
Copper, Dissolved	ug/L	<1.2	1000	1000	1020	990	102	99	75-125	3	20			
Lead, Dissolved	ug/L	2.5J	1000	1000	1030	1010	103	101	75-125	2	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1030	1020	103	101	75-125	2	20			
Nickel, Dissolved	ug/L	<1.1	1000	1000	1020	993	102	99	75-125	3	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1060	1030	106	103	75-125	2	20			
Silver, Dissolved	ug/L	<0.40	500	500	518	505	104	101	75-125	3	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	1010	985	100	98	75-125	2	20			
Vanadium, Dissolved	ug/L	4.0J	1000	1000	1030	1000	103	100	75-125	3	20			
Zinc, Dissolved	ug/L	<6.3	1000	1000	1050	1020	105	102	75-125	3	20			

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

QC Batch: 651652 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10503189001, 10503189002, 10503189003

METHOD BLANK: 3504385 Matrix: Water

Associated Lab Samples: 10503189001, 10503189002, 10503189003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/24/19 22:10	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/24/19 22:10	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/24/19 22:10	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/24/19 22:10	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/24/19 22:10	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/24/19 22:10	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/24/19 22:10	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/24/19 22:10	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/24/19 22:10	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/24/19 22:10	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/24/19 22:10	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/24/19 22:10	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/24/19 22:10	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/24/19 22:10	
Acetone	ug/L	<9.2	20.0	9.2	12/24/19 22:10	
Acrolein	ug/L	<3.2	40.0	3.2	12/24/19 22:10	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/24/19 22:10	
Benzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/24/19 22:10	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/24/19 22:10	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/24/19 22:10	
Bromoform	ug/L	<0.80	4.0	0.80	12/24/19 22:10	
Bromomethane	ug/L	<1.8	4.0	1.8	12/24/19 22:10	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/24/19 22:10	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/24/19 22:10	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

METHOD BLANK: 3504385 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Chloroethane	ug/L	<0.49	1.0	0.49	12/24/19 22:10	
Chloroform	ug/L	<0.45	4.0	0.45	12/24/19 22:10	
Chloromethane	ug/L	<0.48	4.0	0.48	12/24/19 22:10	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/24/19 22:10	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/24/19 22:10	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/24/19 22:10	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/24/19 22:10	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/24/19 22:10	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/24/19 22:10	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/24/19 22:10	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/24/19 22:10	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/24/19 22:10	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/24/19 22:10	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/24/19 22:10	
Naphthalene	ug/L	<0.48	1.0	0.48	12/24/19 22:10	
o-Xylene	ug/L	<0.16	0.50	0.16	12/24/19 22:10	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/24/19 22:10	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Styrene	ug/L	<0.19	0.50	0.19	12/24/19 22:10	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/24/19 22:10	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/24/19 22:10	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/24/19 22:10	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/24/19 22:10	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/24/19 22:10	
Toluene	ug/L	<0.083	0.50	0.083	12/24/19 22:10	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/24/19 22:10	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/24/19 22:10	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/24/19 22:10	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/24/19 22:10	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/24/19 22:10	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/24/19 22:10	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/24/19 22:10	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/24/19 22:10	
1,2-Dichloroethane-d4 (S)	%	112	75-136		12/24/19 22:10	
4-Bromofluorobenzene (S)	%	105	75-125		12/24/19 22:10	
Toluene-d8 (S)	%	106	75-125		12/24/19 22:10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	25.1	125	68-141	
1,1,1-Trichloroethane	ug/L	20	21.5	107	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	24.8	124	73-125	
1,1,2-Trichloroethane	ug/L	20	22.6	113	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	27.2	136	69-132	L3
1,1-Dichloroethane	ug/L	20	24.2	121	73-125	
1,1-Dichloroethene	ug/L	20	24.0	120	71-126	
1,1-Dichloropropene	ug/L	20	20.2	101	73-126	
1,2,3-Trichlorobenzene	ug/L	20	23.1	115	72-126	
1,2,3-Trichloropropane	ug/L	20	24.5	122	75-126	
1,2,4-Trichlorobenzene	ug/L	20	23.2	116	71-134	
1,2,4-Trimethylbenzene	ug/L	20	25.2	126	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	56.4	113	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	23.6	118	75-129	
1,2-Dichlorobenzene	ug/L	20	23.2	116	75-129	
1,2-Dichloroethane	ug/L	20	20.6	103	75-125	
1,2-Dichloroethene (Total)	ug/L	40	42.7	107	74-125	N2
1,2-Dichloropropane	ug/L	20	22.6	113	75-125	
1,3,5-Trimethylbenzene	ug/L	20	25.1	125	75-127	
1,3-Dichlorobenzene	ug/L	20	22.5	113	75-126	
1,3-Dichloropropane	ug/L	20	22.5	113	75-125	
1,4-Dichlorobenzene	ug/L	20	21.3	106	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	398	100	72-129	
2,2,4-Trimethylpentane	ug/L	20	19.4	97	72-128	
2,2-Dichloropropane	ug/L	20	19.3	96	65-138	
2-Butanone (MEK)	ug/L	100	97.9	98	59-144	
2-Chlorotoluene	ug/L	20	25.8	129	75-127	L3
2-Hexanone	ug/L	100	115	115	73-134	
4-Chlorotoluene	ug/L	20	25.3	126	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	62-141	
Acetone	ug/L	100	94.3	94	60-137	
Acrolein	ug/L	200	291	145	60-141	CH,L3
Acrylonitrile	ug/L	200	234	117	75-129	
Benzene	ug/L	20	21.8	109	73-125	
Bromobenzene	ug/L	20	21.8	109	73-125	
Bromochloromethane	ug/L	20	19.5	98	75-135	
Bromodichloromethane	ug/L	20	22.2	111	75-125	
Bromoform	ug/L	20	22.2	111	67-136	
Bromomethane	ug/L	20	22.7	114	30-150	
Carbon disulfide	ug/L	20	23.7	118	47-137	
Carbon tetrachloride	ug/L	20	22.4	112	75-125	
Chlorobenzene	ug/L	20	22.3	111	75-125	
Chloroethane	ug/L	20	21.7	109	63-136	
Chloroform	ug/L	20	20.4	102	73-128	
Chloromethane	ug/L	20	21.3	106	55-130	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	75-125	
cis-1,3-Dichloropropene	ug/L	20	23.7	119	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

LABORATORY CONTROL SAMPLE: 3504386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	22.0	110	75-125	
Dibromomethane	ug/L	20	21.3	106	75-125	
Dichlorodifluoromethane	ug/L	20	22.1	111	63-132	
Dichlorofluoromethane	ug/L	20	21.8	109	68-127	
Diisopropyl ether	ug/L	20	24.7	124	71-131	
Ethyl-tert-butyl ether	ug/L	20	22.4	112	75-125	
Ethylbenzene	ug/L	20	23.2	116	75-125	
Hexachloro-1,3-butadiene	ug/L	20	25.6	128	72-134	
Isopropylbenzene (Cumene)	ug/L	20	24.3	122	75-125	
m&p-Xylene	ug/L	40	52.2	131	75-126 L3	
Methyl-tert-butyl ether	ug/L	20	24.0	120	75-125	
Methylene Chloride	ug/L	20	24.4	122	70-125	
n-Butylbenzene	ug/L	20	25.7	128	75-126 L3	
n-Propylbenzene	ug/L	20	26.3	132	73-127 L3	
Naphthalene	ug/L	20	21.9	110	63-128	
o-Xylene	ug/L	20	23.2	116	75-128	
p-Isopropyltoluene	ug/L	20	25.6	128	75-125 L3	
sec-Butylbenzene	ug/L	20	25.8	129	75-126 L3	
Styrene	ug/L	20	23.5	117	75-125	
tert-Amylmethyl ether	ug/L	20	21.3	106	75-125	
tert-Butyl Alcohol	ug/L	200	227	114	75-130	
tert-Butylbenzene	ug/L	20	25.5	127	75-131	
Tetrachloroethene	ug/L	20	24.2	121	74-125	
Tetrahydrofuran	ug/L	200	163	81	64-138	
Toluene	ug/L	20	22.3	111	74-125	
trans-1,2-Dichloroethene	ug/L	20	23.3	116	68-128	
trans-1,3-Dichloropropene	ug/L	20	22.8	114	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	49.6	99	60-127	
Trichloroethene	ug/L	20	24.5	123	75-127	
Trichlorofluoromethane	ug/L	20	23.1	115	72-133	
Vinyl acetate	ug/L	20	23.1	115	61-129	
Vinyl chloride	ug/L	20	23.4	117	75-128	
Xylene (Total)	ug/L	60	75.4	126	75-125 LS	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504387 3504388

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10502648001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	24.4	23.6	122	118	75-140	3	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	26.7	23.2	134	116	74-136	14	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	24.9	22.3	124	112	66-134	11	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	21.8	21.1	109	106	75-126	3	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3504387			3504388							
Parameter	Units	10502648001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	27.4	27.6	137	138	65-146	1	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	23.7	22.5	119	112	68-132	6	30	
1,1-Dichloroethene	ug/L	<0.16	20	20	25.0	23.3	125	117	66-139	7	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	27.2	20.6	136	103	67-134	28	30 M1	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	23.1	22.3	116	111	67-129	4	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	24.5	22.2	123	111	69-128	10	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	22.8	22.4	114	112	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	25.3	25.5	126	128	71-133	1	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	54.9	51.9	110	104	54-138	6	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	22.9	22.2	114	111	68-125	3	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	22.0	23.3	110	116	74-136	6	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	20.1	20.1	101	100	68-125	0	30	
1,2-Dichloroethene (Total)	ug/L	<0.27	40	40	45.7	41.2	114	103	71-126	10	30 N2	
1,2-Dichloropropane	ug/L	<0.16	20	20	22.5	21.6	113	108	67-125	4	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	26.0	25.7	130	128	68-137	1	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	22.9	23.1	114	115	75-131	1	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	22.2	21.5	111	108	71-125	3	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	21.2	21.7	106	109	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	388	396	97	99	68-125	2	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	25.1	18.7	125	94	54-129	29	30	
2,2-Dichloropropane	ug/L	<0.17	20	20	24.4	20.2	122	101	69-139	19	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	130	89.8	130	90	54-144	37	30 R1	
2-Chlorotoluene	ug/L	<0.16	20	20	26.5	26.8	133	134	75-134	1	30	
2-Hexanone	ug/L	<0.88	100	100	115	110	115	110	58-137	5	30	
4-Chlorotoluene	ug/L	<0.13	20	20	25.5	25.8	127	129	72-133	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	115	109	115	109	60-129	6	30	
Acetone	ug/L	<9.2	100	100	95.5	91.6	95	92	62-132	4	30	
Acrolein	ug/L	<3.2	200	200	210	202	105	101	30-150	4	30 CH	
Acrylonitrile	ug/L	<0.91	200	200	232	214	116	107	68-125	8	30	
Benzene	ug/L	<0.10	20	20	24.2	21.3	121	107	68-125	13	30	
Bromobenzene	ug/L	<0.21	20	20	21.7	21.9	109	109	73-126	1	30	
Bromochloromethane	ug/L	<0.27	20	20	22.9	20.2	115	101	66-143	13	30	
Bromodichloromethane	ug/L	<0.22	20	20	22.6	22.2	113	111	74-125	2	30	
Bromoform	ug/L	<0.80	20	20	21.8	20.9	109	104	64-134	4	30	
Bromomethane	ug/L	<1.8	20	20	21.8	21.0	109	105	30-150	4	30	
Carbon disulfide	ug/L	<0.19	20	20	25.3	22.4	126	112	43-147	12	30	
Carbon tetrachloride	ug/L	<0.19	20	20	27.9	24.3	140	121	71-143	14	30	
Chlorobenzene	ug/L	<0.17	20	20	21.7	21.3	108	107	75-125	2	30	
Chloroethane	ug/L	<0.49	20	20	22.5	20.5	112	102	75-129	9	30	
Chloroform	ug/L	<0.45	20	20	24.1	20.7	121	104	66-132	15	30	
Chloromethane	ug/L	<0.48	20	20	21.9	21.0	110	105	53-137	4	30	
cis-1,2-Dichloroethene	ug/L	<0.15	20	20	23.0	19.7	115	99	67-133	15	30	
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	21.4	20.6	107	103	66-125	4	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Parameter	Units	10502648001		3504387		3504388		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromochloromethane	ug/L	<0.12	20	20	21.3	21.1	106	106	62-132	1	30			
Dibromomethane	ug/L	<0.16	20	20	21.1	19.8	105	99	67-125	6	30			
Dichlorodifluoromethane	ug/L	<0.23	20	20	23.6	22.6	118	113	71-142	4	30			
Dichlorofluoromethane	ug/L	<0.14	20	20	22.0	20.6	110	103	70-131	6	30			
Diisopropyl ether	ug/L	<0.13	20	20	23.4	22.7	117	114	63-131	3	30			
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	23.2	20.5	116	103	66-128	12	30			
Ethylbenzene	ug/L	<0.14	20	20	22.9	23.1	114	116	74-126	1	30			
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	27.0	22.2	135	111	68-143	20	30			
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	25.0	25.8	125	129	74-130	3	30			
m&p-Xylene	ug/L	<0.31	40	40	51.1	52.5	128	131	69-132	3	30			
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.4	21.0	107	105	65-131	2	30			
Methylene Chloride	ug/L	<0.98	20	20	22.2	21.6	111	108	57-125	3	30			
n-Butylbenzene	ug/L	<0.24	20	20	26.2	24.9	131	125	71-131	5	30			
n-Propylbenzene	ug/L	<0.10	20	20	27.1	27.5	136	137	67-138	1	30			
Naphthalene	ug/L	<0.48	20	20	21.7	21.9	109	109	60-130	1	30			
o-Xylene	ug/L	<0.16	20	20	23.4	23.2	117	116	69-131	1	30			
p-Isopropyltoluene	ug/L	<0.15	20	20	25.1	25.4	126	127	72-133	1	30			
sec-Butylbenzene	ug/L	<0.15	20	20	26.8	26.2	134	131	73-134	2	30			
Styrene	ug/L	<0.19	20	20	22.6	21.9	113	110	72-125	3	30			
tert-Amylmethyl ether	ug/L	<0.11	20	20	21.7	19.9	108	100	67-125	9	30			
tert-Butyl Alcohol	ug/L	<1.2	200	200	206	209	103	104	64-137	1	30			
tert-Butylbenzene	ug/L	<0.15	20	20	26.3	26.2	132	131	70-143	0	30			
Tetrachloroethene	ug/L	<0.17	20	20	23.9	25.2	119	126	72-129	5	30			
Tetrahydrofuran	ug/L	<2.2	200	200	210	184	105	92	66-128	13	30			
Toluene	ug/L	<0.083	20	20	22.1	21.3	110	106	73-125	4	30			
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	22.7	21.4	113	107	62-137	6	30			
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	21.6	21.4	108	107	61-136	1	30			
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.6	43.7	97	87	45-128	11	30			
Trichloroethene	ug/L	<0.15	20	20	24.5	23.9	123	119	74-132	3	30			
Trichlorofluoromethane	ug/L	<0.23	20	20	23.1	21.8	116	109	75-139	6	30			
Vinyl acetate	ug/L	<1.1	20	20	21.0	18.7	105	93	51-135	12	30			
Vinyl chloride	ug/L	<0.092	20	20	24.0	22.4	120	112	68-146	7	30			
Xylene (Total)	ug/L	<0.31	60	60	74.4	75.7	124	126	67-137	2	30			
1,2-Dichloroethane-d4 (S)	%						105	99	75-136					
4-Bromofluorobenzene (S)	%						105	101	75-125					
Toluene-d8 (S)	%						97	97	75-125					

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

QC Batch: 651790 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
Associated Lab Samples: 10503189004, 10503189005, 10503189006, 10503189007

METHOD BLANK: 3505277 Matrix: Water
Associated Lab Samples: 10503189004, 10503189005, 10503189006, 10503189007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/26/19 10:54	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/26/19 10:54	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/26/19 10:54	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/26/19 10:54	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/26/19 10:54	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/26/19 10:54	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/26/19 10:54	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/26/19 10:54	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/26/19 10:54	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/26/19 10:54	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/26/19 10:54	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/26/19 10:54	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/26/19 10:54	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/26/19 10:54	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/26/19 10:54	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/26/19 10:54	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/26/19 10:54	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/26/19 10:54	
Acetone	ug/L	<9.2	20.0	9.2	12/26/19 10:54	
Acrolein	ug/L	<3.2	40.0	3.2	12/26/19 10:54	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/26/19 10:54	
Benzene	ug/L	<0.10	0.50	0.10	12/26/19 10:54	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/26/19 10:54	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/26/19 10:54	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/26/19 10:54	
Bromoform	ug/L	<0.80	4.0	0.80	12/26/19 10:54	
Bromomethane	ug/L	<1.8	4.0	1.8	12/26/19 10:54	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/26/19 10:54	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/26/19 10:54	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

METHOD BLANK: 3505277

Matrix: Water

Associated Lab Samples: 10503189004, 10503189005, 10503189006, 10503189007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
Chloroethane	ug/L	<0.49	1.0	0.49	12/26/19 10:54	
Chloroform	ug/L	<0.45	4.0	0.45	12/26/19 10:54	
Chloromethane	ug/L	<0.48	4.0	0.48	12/26/19 10:54	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/26/19 10:54	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/26/19 10:54	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/26/19 10:54	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/26/19 10:54	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/26/19 10:54	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/26/19 10:54	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/26/19 10:54	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/26/19 10:54	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/26/19 10:54	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/26/19 10:54	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/26/19 10:54	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/26/19 10:54	
Naphthalene	ug/L	<0.48	1.0	0.48	12/26/19 10:54	
o-Xylene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/26/19 10:54	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/26/19 10:54	
Styrene	ug/L	<0.19	0.50	0.19	12/26/19 10:54	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/26/19 10:54	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/26/19 10:54	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/26/19 10:54	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/26/19 10:54	
Toluene	ug/L	<0.083	0.50	0.083	12/26/19 10:54	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/26/19 10:54	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/26/19 10:54	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/26/19 10:54	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/26/19 10:54	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/26/19 10:54	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/26/19 10:54	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/26/19 10:54	
1,2-Dichloroethane-d4 (S)	%	111	75-136		12/26/19 10:54	
4-Bromofluorobenzene (S)	%	97	75-125		12/26/19 10:54	
Toluene-d8 (S)	%	104	75-125		12/26/19 10:54	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

LABORATORY CONTROL SAMPLE: 3505278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	22.2	111	68-141	
1,1,1-Trichloroethane	ug/L	20	19.9	100	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	21.8	109	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	23.0	115	69-132	
1,1-Dichloroethane	ug/L	20	19.5	97	73-125	
1,1-Dichloroethene	ug/L	20	19.6	98	71-126	
1,1-Dichloropropene	ug/L	20	18.9	95	73-126	
1,2,3-Trichlorobenzene	ug/L	20	19.1	96	72-126	
1,2,3-Trichloropropane	ug/L	20	20.8	104	75-126	
1,2,4-Trichlorobenzene	ug/L	20	19.8	99	71-134	
1,2,4-Trimethylbenzene	ug/L	20	21.3	107	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	46.7	93	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	20.4	102	75-129	
1,2-Dichlorobenzene	ug/L	20	19.3	96	75-129	
1,2-Dichloroethane	ug/L	20	17.8	89	75-125	
1,2-Dichloroethene (Total)	ug/L	40	35.7	89	74-125	N2
1,2-Dichloropropane	ug/L	20	20.0	100	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.5	107	75-127	
1,3-Dichlorobenzene	ug/L	20	19.2	96	75-126	
1,3-Dichloropropane	ug/L	20	20.0	100	75-125	
1,4-Dichlorobenzene	ug/L	20	18.3	92	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	382	96	72-129	
2,2,4-Trimethylpentane	ug/L	20	16.8	84	72-128	
2,2-Dichloropropane	ug/L	20	19.5	98	65-138	
2-Butanone (MEK)	ug/L	100	112	112	59-144	
2-Chlorotoluene	ug/L	20	21.1	106	75-127	
2-Hexanone	ug/L	100	107	107	73-134	
4-Chlorotoluene	ug/L	20	21.4	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	62-141	
Acetone	ug/L	100	132	132	60-137	
Acrolein	ug/L	200	257	128	60-141	
Acrylonitrile	ug/L	200	197	98	75-129	
Benzene	ug/L	20	18.2	91	73-125	
Bromobenzene	ug/L	20	18.6	93	73-125	
Bromochloromethane	ug/L	20	18.6	93	75-135	
Bromodichloromethane	ug/L	20	19.9	100	75-125	
Bromoform	ug/L	20	20.4	102	67-136	
Bromomethane	ug/L	20	19.3	97	30-150	
Carbon disulfide	ug/L	20	18.8	94	47-137	
Carbon tetrachloride	ug/L	20	20.1	101	75-125	
Chlorobenzene	ug/L	20	19.3	96	75-125	
Chloroethane	ug/L	20	20.1	100	63-136	
Chloroform	ug/L	20	19.3	97	73-128	
Chloromethane	ug/L	20	18.8	94	55-130	
cis-1,2-Dichloroethene	ug/L	20	17.4	87	75-125	
cis-1,3-Dichloropropene	ug/L	20	22.2	111	74-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

LABORATORY CONTROL SAMPLE: 3505278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	19.6	98	75-125	
Dibromomethane	ug/L	20	19.4	97	75-125	
Dichlorodifluoromethane	ug/L	20	20.2	101	63-132	
Dichlorofluoromethane	ug/L	20	19.9	99	68-127	
Diisopropyl ether	ug/L	20	19.3	97	71-131	
Ethyl-tert-butyl ether	ug/L	20	18.5	92	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Hexachloro-1,3-butadiene	ug/L	20	22.3	112	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.2	106	75-125	
m&p-Xylene	ug/L	40	44.2	110	75-126	
Methyl-tert-butyl ether	ug/L	20	18.4	92	75-125	
Methylene Chloride	ug/L	20	20.0	100	70-125	
n-Butylbenzene	ug/L	20	21.9	109	75-126	
n-Propylbenzene	ug/L	20	21.7	109	73-127	
Naphthalene	ug/L	20	17.7	88	63-128	
o-Xylene	ug/L	20	19.8	99	75-128	
p-Isopropyltoluene	ug/L	20	22.1	111	75-125	
sec-Butylbenzene	ug/L	20	22.1	110	75-126	
Styrene	ug/L	20	20.6	103	75-125	
tert-Amylmethyl ether	ug/L	20	17.7	88	75-125	
tert-Butyl Alcohol	ug/L	200	194	97	75-130	
tert-Butylbenzene	ug/L	20	21.2	106	75-131	
Tetrachloroethene	ug/L	20	21.7	109	74-125	
Tetrahydrofuran	ug/L	200	182	91	64-138	
Toluene	ug/L	20	19.6	98	74-125	
trans-1,2-Dichloroethene	ug/L	20	18.3	91	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.5	102	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.6	89	60-127	
Trichloroethene	ug/L	20	21.9	109	75-127	
Trichlorofluoromethane	ug/L	20	20.3	102	72-133	
Vinyl acetate	ug/L	20	19.7	98	61-129	
Vinyl chloride	ug/L	20	20.5	102	75-128	
Xylene (Total)	ug/L	60	64.0	107	75-125	
1,2-Dichloroethane-d4 (S)	%			93	75-136	
4-Bromofluorobenzene (S)	%			96	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507025 3507026

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503844001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	20	23.8	24.0	119	120	75-140	1	30	
1,1,1-Trichloroethane	ug/L	<0.14	20	20	20	22.8	23.1	114	116	74-136	1	30	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	20	23.2	24.0	116	120	66-134	3	30	
1,1,2-Trichloroethane	ug/L	<0.18	20	20	20	22.3	21.8	112	109	75-126	2	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507025 3507026												
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		10503844001 Result	Spike Conc.	Spike Conc.	MS Conc.							
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	26.7	24.9	134	125	65-146	7	30	
1,1-Dichloroethane	ug/L	<0.17	20	20	22.5	21.0	112	105	68-132	7	30	
1,1-Dichloroethene	ug/L	0.60	20	20	23.3	21.3	114	104	66-139	9	30	
1,1-Dichloropropene	ug/L	<0.20	20	20	22.8	24.0	114	120	67-134	5	30	
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	21.5	21.4	107	107	67-129	0	30	
1,2,3-Trichloropropane	ug/L	<0.26	20	20	21.8	23.7	109	118	69-128	8	30	
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	21.6	21.7	108	108	65-140	0	30	
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	23.4	23.6	117	118	71-133	1	30	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	52.1	53.2	104	106	54-138	2	30	
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	23.1	23.4	116	117	68-125	1	30	
1,2-Dichlorobenzene	ug/L	<0.14	20	20	21.0	21.7	105	109	74-136	3	30	
1,2-Dichloroethane	ug/L	<0.22	20	20	19.1	17.3	95	87	68-125	10	30	
1,2-Dichloroethene (Total)	ug/L	631	40	40	535	501	-239	-323	71-126	7	30	N2
1,2-Dichloropropane	ug/L	<0.16	20	20	21.4	21.4	107	107	67-125	0	30	
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	23.9	23.9	120	120	68-137	0	30	
1,3-Dichlorobenzene	ug/L	<0.16	20	20	21.1	21.3	105	107	75-131	1	30	
1,3-Dichloropropane	ug/L	<0.070	20	20	21.6	21.6	108	108	71-125	0	30	
1,4-Dichlorobenzene	ug/L	<0.17	20	20	19.8	20.3	99	102	74-126	3	30	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	419	394	105	99	68-125	6	30	
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	21.2	26.3	106	131	54-129	21	30	M1
2,2-Dichloropropane	ug/L	<0.17	20	20	23.7	22.2	118	111	69-139	7	30	
2-Butanone (MEK)	ug/L	<0.99	100	100	111	120	111	120	54-144	7	30	
2-Chlorotoluene	ug/L	<0.16	20	20	24.1	24.5	120	122	75-134	2	30	
2-Hexanone	ug/L	<0.88	100	100	109	111	109	111	58-137	1	30	
4-Chlorotoluene	ug/L	<0.13	20	20	23.7	24.1	118	120	72-133	2	30	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	113	112	113	112	60-129	0	30	
Acetone	ug/L	258	100	100	341	334	82	76	62-132	2	30	
Acrolein	ug/L	<3.2	200	200	272	250	136	125	30-150	8	30	
Acrylonitrile	ug/L	<0.91	200	200	219	205	110	102	68-125	7	30	
Benzene	ug/L	<0.10	20	20	20.3	23.7	102	118	68-125	15	30	
Bromobenzene	ug/L	<0.21	20	20	20.1	20.9	100	104	73-126	4	30	
Bromochloromethane	ug/L	<0.27	20	20	20.8	20.1	104	100	66-143	4	30	
Bromodichloromethane	ug/L	<0.22	20	20	21.6	21.6	108	108	74-125	0	30	
Bromoform	ug/L	<0.80	20	20	21.9	21.8	109	109	64-134	0	30	
Bromomethane	ug/L	<1.8	20	20	19.2	18.4	96	92	30-150	4	30	
Carbon disulfide	ug/L	<0.19	20	20	21.1	19.4	106	97	43-147	9	30	
Carbon tetrachloride	ug/L	<0.19	20	20	23.1	23.9	116	119	71-143	3	30	
Chlorobenzene	ug/L	<0.17	20	20	21.3	20.7	106	103	75-125	3	30	
Chloroethane	ug/L	<0.49	20	20	20.1	18.4	100	92	75-129	8	30	
Chloroform	ug/L	<0.45	20	20	21.0	20.9	105	104	66-132	0	30	
Chloromethane	ug/L	<0.48	20	20	19.2	18.4	96	92	53-137	5	30	
cis-1,2-Dichloroethene	ug/L	631	20	20	514	481	-584	-747	67-133	7	30	E,M1
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	23.3	23.5	116	118	66-125	1	30	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Parameter	Units	3507025		3507026		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10503844001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	<0.12	20	20	22.3	21.7	112	109	62-132	3	30		
Dibromomethane	ug/L	<0.16	20	20	20.5	20.4	103	102	67-125	1	30		
Dichlorodifluoromethane	ug/L	<0.23	20	20	21.3	19.9	106	100	71-142	7	30		
Dichlorofluoromethane	ug/L	<0.14	20	20	19.9	18.7	99	94	70-131	6	30		
Diisopropyl ether	ug/L	<0.13	20	20	22.5	20.9	113	104	63-131	8	30		
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	20.2	107	101	66-128	6	30		
Ethylbenzene	ug/L	31.8	20	20	53.7	52.7	110	105	74-126	2	30		
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	25.6	26.7	128	134	68-143	4	30		
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.1	24.0	120	119	74-130	0	30		
m&p-Xylene	ug/L	219	40	40	247	244	70	61	69-132	2	30	E,M1	
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.0	19.8	105	99	65-131	6	30		
Methylene Chloride	ug/L	<0.98	20	20	21.9	20.3	109	102	57-125	7	30		
n-Butylbenzene	ug/L	<0.24	20	20	24.5	24.7	122	124	71-131	1	30		
n-Propylbenzene	ug/L	<0.10	20	20	25.0	25.2	125	126	67-138	1	30		
Naphthalene	ug/L	<0.48	20	20	19.5	20.1	97	101	60-130	3	30		
o-Xylene	ug/L	49.0	20	20	61.3	60.4	61	57	69-131	2	30	E,M1	
p-Isopropyltoluene	ug/L	<0.15	20	20	24.7	24.9	124	124	72-133	1	30		
sec-Butylbenzene	ug/L	<0.15	20	20	24.6	25.0	123	125	73-134	2	30		
Styrene	ug/L	<0.19	20	20	23.2	23.1	116	116	72-125	0	30		
tert-Amylmethyl ether	ug/L	<0.11	20	20	19.6	19.7	98	98	67-125	1	30		
tert-Butyl Alcohol	ug/L	<1.2	200	200	219	212	110	106	64-137	3	30		
tert-Butylbenzene	ug/L	<0.15	20	20	23.8	24.0	119	120	70-143	1	30		
Tetrachloroethene	ug/L	64.9	20	20	90.9	87.1	130	111	72-129	4	30	E,M1	
Tetrahydrofuran	ug/L	<2.2	200	200	184	210	92	105	66-128	13	30		
Toluene	ug/L	88.5	20	20	104	100	77	60	73-125	3	30	M1	
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	21.1	20.0	106	100	62-137	5	30		
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	22.4	22.1	112	111	61-136	1	30		
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.2	50.0	96	100	45-128	4	30		
Trichloroethene	ug/L	25.0	20	20	51.4	49.8	132	124	74-132	3	30	E	
Trichlorofluoromethane	ug/L	<0.23	20	20	21.4	20.2	107	101	75-139	6	30		
Vinyl acetate	ug/L	<1.1	20	20	22.5	21.3	112	106	51-135	5	30		
Vinyl chloride	ug/L	0.16J	20	20	20.6	19.9	102	99	68-146	3	30		
Xylene (Total)	ug/L	268	60	60	309	304	67	59	67-137	2	30	ES,MS	
1,2-Dichloroethane-d4 (S)	%						92	93	75-136				
4-Bromofluorobenzene (S)	%						98	100	75-125				
Toluene-d8 (S)	%						103	99	75-125				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 652417 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3507643 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<2.0	5.0	2.0	12/31/19 12:09	

LABORATORY CONTROL SAMPLE & LCSD: 3507644 3507645

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	40	43.0	43.0	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507646 3507647

Parameter	Units	10503996001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	35.9	40	40	62.6	64.5	67	71	80-120	3	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507648 3507649

Parameter	Units	10503996002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	34.5	40	40	58.4	60.7	60	65	80-120	4	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 651545 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3503922 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/24/19 11:26	

LABORATORY CONTROL SAMPLE & LCSD: 3503923 3503924

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1000	1020	1010	102	101	80-120	1	5	

SAMPLE DUPLICATE: 3503925

Parameter	Units	10503087003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	644	624	3	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 169748 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 770222 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/24/19 13:21	

LABORATORY CONTROL SAMPLE: 770223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.19	94	90-110	

MATRIX SPIKE SAMPLE: 770225

Parameter	Units	20135800001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.2	0.093	46	75-125	M1

SAMPLE DUPLICATE: 770224

Parameter	Units	20135800001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	<0.0062		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 651031 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3501000 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/22/19 01:20	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/22/19 01:20	
Sulfate	mg/L	0.48J	1.2	0.28	12/22/19 01:20	

LABORATORY CONTROL SAMPLE: 3501001

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.7	102	90-110	
Nitrate as N	mg/L	1	1.1	108	90-110	
Sulfate	mg/L	12.5	12.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501002 3501003

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503189001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	1.9	12.5	12.5	19.3	18.9	139	136	136	90-110	2	20	M1
Nitrate as N	mg/L	0.21	1	1	1.5	1.5	133	128	128	90-110	3	20	M1
Sulfate	mg/L	2.9	12.5	12.5	19.8	19.3	136	131	131	90-110	3	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 652018 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3505980 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	12/27/19 14:05	FS

LABORATORY CONTROL SAMPLE: 3505981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	104	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505982 3505983

Parameter	Units	10503189005		10503189006		3505982		3505983		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	<0.018	1	1	0.94	0.93	94	93	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505984 3505985

Parameter	Units	10503189006		3505984		3505985		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Nitrogen, NO2 plus NO3	mg/L	0.42	1	1	1.5	1.5	108	108	90-110	1	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 652457 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 3507749 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/31/19 13:10	

LABORATORY CONTROL SAMPLE: 3507750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	304	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507751 3507752

Parameter	Units	10503189001		10503189002		10503189003		10503189004		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	251	246	100	98	90-110	2	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507753 3507754

Parameter	Units	10503189002		10503189003		10503189004		10503189005		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chemical Oxygen Demand	mg/L	<17.0	250	250	257	248	103	99	90-110	4	20		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

QC Batch: 181397 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

METHOD BLANK: 717271 Matrix: Water
Associated Lab Samples: 10503189001, 10503189002, 10503189003, 10503189004, 10503189005, 10503189006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/20/19 16:39	

LABORATORY CONTROL SAMPLE: 717272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	26.5	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717273 717274

Parameter	Units	12139546001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Total Organic Carbon	mg/L	ND	25	27.2	25	27.2	108	108	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717275 717276

Parameter	Units	10502955004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Total Organic Carbon	mg/L	0.66J	25	27.5	25	27.5	107	107	80-120	0	20	

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
 ND - Not Detected at or above adjusted reporting limit.
 TNTC - Too Numerous To Count
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 PQL - Practical Quantitation Limit.
 RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
 S - Surrogate
 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
 TNI - The NELAC Institute.

LABORATORIES

PAN Pace Analytical National
 PASI-M Pace Analytical Services - Minneapolis
 PASI-N Pace Analytical Services - New Orleans
 PASI-V Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.
 CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
 E Analyte concentration exceeded the calibration range. The reported result is estimated.
 ES The reported result is estimated because one or more of the constituent results are qualified as such.
 FS The sample was filtered in the laboratory prior to analysis.
 L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
 LS Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analytes used in the calculated result.
 M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.
 MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

ANALYTE QUALIFIERS

- | | |
|----|---|
| N2 | The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request. |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level. |
| R1 | RPD value was outside control limits. |

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503189

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10503189001	W20-GW-121819	RSK175	1403002	RSK-175	1403002
10503189002	MW35-GW-121819	RSK175	1403002	RSK-175	1403002
10503189003	MW36-GW-121819	RSK175	1403002	RSK-175	1403002
10503189004	MW4D-GW-121819	RSK175	1403002	RSK-175	1403002
10503189005	W26-GW-121819	RSK175	1403002	RSK-175	1403002
10503189006	MW13S-GW-121819	RSK175	1403002	RSK-175	1403002
10503189001	W20-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189002	MW35-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189003	MW36-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189004	MW4D-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189005	W26-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189006	MW13S-GW-121819	EPA 3010	651058	EPA 6010D	652450
10503189001	W20-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189002	MW35-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189003	MW36-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189004	MW4D-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189005	W26-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189006	MW13S-GW-121819	EPA 7470A	651080	EPA 7470A	652124
10503189001	W20-GW-121819	EPA 8260B	651652		
10503189002	MW35-GW-121819	EPA 8260B	651652		
10503189003	MW36-GW-121819	EPA 8260B	651652		
10503189004	MW4D-GW-121819	EPA 8260B	651790		
10503189005	W26-GW-121819	EPA 8260B	651790		
10503189006	MW13S-GW-121819	EPA 8260B	651790		
10503189007	TB1-121819	EPA 8260B	651790		
10503189001	W20-GW-121819	SM 2320B	652417		
10503189002	MW35-GW-121819	SM 2320B	652417		
10503189003	MW36-GW-121819	SM 2320B	652417		
10503189004	MW4D-GW-121819	SM 2320B	652417		
10503189005	W26-GW-121819	SM 2320B	652417		
10503189006	MW13S-GW-121819	SM 2320B	652417		
10503189001	W20-GW-121819	SM 2540C	651545		
10503189002	MW35-GW-121819	SM 2540C	651545		
10503189003	MW36-GW-121819	SM 2540C	651545		
10503189004	MW4D-GW-121819	SM 2540C	651545		
10503189005	W26-GW-121819	SM 2540C	651545		
10503189006	MW13S-GW-121819	SM 2540C	651545		
10503189001	W20-GW-121819	SM 4500-S-2 D	169748		
10503189002	MW35-GW-121819	SM 4500-S-2 D	169748		
10503189003	MW36-GW-121819	SM 4500-S-2 D	169748		
10503189004	MW4D-GW-121819	SM 4500-S-2 D	169748		
10503189005	W26-GW-121819	SM 4500-S-2 D	169748		
10503189006	MW13S-GW-121819	SM 4500-S-2 D	169748		
10503189001	W20-GW-121819	EPA 300.0	651031		
10503189002	MW35-GW-121819	EPA 300.0	651031		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503189

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10503189003	MW36-GW-121819	EPA 300.0	651031		
10503189004	MW4D-GW-121819	EPA 300.0	651031		
10503189005	W26-GW-121819	EPA 300.0	651031		
10503189006	MW13S-GW-121819	EPA 300.0	651031		
10503189001	W20-GW-121819	EPA 353.2	652018		
10503189002	MW35-GW-121819	EPA 353.2	652018		
10503189003	MW36-GW-121819	EPA 353.2	652018		
10503189004	MW4D-GW-121819	EPA 353.2	652018		
10503189005	W26-GW-121819	EPA 353.2	652018		
10503189006	MW13S-GW-121819	EPA 353.2	652018		
10503189001	W20-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189002	MW35-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189003	MW36-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189004	MW4D-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189005	W26-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189006	MW13S-GW-121819	EPA 410.4	652457	EPA 410.4	652490
10503189001	W20-GW-121819	SM 5310C	181397		
10503189002	MW35-GW-121819	SM 5310C	181397		
10503189003	MW36-GW-121819	SM 5310C	181397		
10503189004	MW4D-GW-121819	SM 5310C	181397		
10503189005	W26-GW-121819	SM 5310C	181397		
10503189006	MW13S-GW-121819	SM 5310C	181397		

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must

WO#: 10503189



Section A

Section B

Section C

Required Client Information:

Required Project Information:

Invoice Information:

Company: UPRR_Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza Copy To: David Hodson, UPRR-Sysdat@ghd.com	Company: UPRR
Email:	Purchase Order #: PEDD# 1497	Address: 1400 W. 52nd Ave, Denver, CO 80221
Phone:	Project Name: Freeman WA-Cenex Harvest Lease	Pace Quote: Contract# 9900758938
Requested Due Date: 10 Day Standard	Project #:	Pace Project Manager: Jennifer Gross
		Pace Profile #: 36447 / 4

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (Q=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Y/N	Requested Analysis Filtered (Y/N)														
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other		Analyses Test	Y													
																		Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorus	8010 Total Iron	MS/MSD Requested	
1	MW26-GW-121819	WTG				12/18/19	0930	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	001			
2	MW35-GW-121819	WTG				12/18/19	1015	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	002			
3	MW36-GW-121819	WTG				12/18/19	1045	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	003			
4	MW40-GW-121819	WTG				12/18/19	1130	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	004			
5	WZ6-GW-121819	WTG				12/18/19	1300	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	005			
6	MW35-GW-121819	WTG				12/18/19	1345	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	006			
7	TBI-121819	WTG				12/18/19	0700	-	3																			007			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS							
Short hold analyses are in bold	<i>Kesl Jacobs</i>	12/18/19	1500	<i>[Signature]</i>	12-19-19	900	0.4.4	Y	N	Y				
*Field filtered by client														

Page 71 of 79

SAMPLER NAME AND SIGNATURE		TEMP In C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<i>Karla Savage</i>					
SIGNATURE of SAMPLER:	<i>[Signature]</i>					
DATE Signed:		12/18/19				

Sample Condition Upon Receipt	Client Name: <u>UPRR Jacobs</u>	Project #: WO#: 10503189
	Courier: <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial <input type="checkbox"/> See Exceptions	PM: JMG Due Date: 01/06/20 CLIENT: UPRR_Jacobs
Tracking Number: <u>7024457530431812/19</u>		

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459)
 T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: _____ °C	Average Corrected Temp (no temp blank only): <input checked="" type="checkbox"/> See Exceptions
Correction Factor: <u>0.1</u>	Cooler Temp Corrected w/temp blank: _____ °C	<u>1.0, 4.4°C</u> <input type="checkbox"/> 1 Container

USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: 12.19.19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # <u>1-6</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ 1/2 <input checked="" type="checkbox"/> H ₂ SO ₄ 1/2 <input checked="" type="checkbox"/> Zinc Acetate 1/2
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No pH Paper Lot# <input type="checkbox"/> See Exception
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll <u>907619</u> 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): <u>236659, 236657</u>
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Jon Espinoza Date/Time: 12/30/19 11:35a Field Data Required? Yes No

Comments/Resolution: MW26-GW-121819 should be W20-GW-121819.

Project Manager Review: Jenni Gross Date: 121919

Note: Whenever there is a discrepancy affecting North Carolina samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).



Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No															
			If yes, indicate who was contacted/date/time. If no, indicate reason why.															
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.															
			No Temp Blank															
			<table border="1"><thead><tr><th>Read Temp</th><th>Corrected Temp</th><th>Average Temp</th></tr></thead><tbody><tr><td>1.1</td><td>1.0</td><td>1.0</td></tr><tr><td>0.3</td><td>0.2</td><td></td></tr><tr><td>2.2</td><td>2.1</td><td></td></tr><tr><td>0.9</td><td>0.7</td><td></td></tr></tbody></table>	Read Temp	Corrected Temp	Average Temp	1.1	1.0	1.0	0.3	0.2		2.2	2.1		0.9	0.7	
Read Temp	Corrected Temp	Average Temp																
1.1	1.0	1.0																
0.3	0.2																	
2.2	2.1																	
0.9	0.7																	

Tracking Number/Temperature
1021 4575 3643
" " 3654
4.5/4.4
4.5/4.4c

Other Issues		
Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	



12139594

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/19/2019 Results Requested By: 1/6/2020

Workorder: 10503189

Workorder Name: Freeman,WA-Cenex Harvest Lease

Report To		Subcontract To				Requested Analysis														
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical Virginia MN 315 Chestnut Street Virginia, MN 55792 Phone (218)742-1042																		
						5632354 / 5310 TOC														
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				LAB USE ONLY										
						HPS04	DC95													
1	MW26-GW-121819	PS	12/18/2019 09:30	10503189001	Water	2														
2	MW35-GW-121819	PS	12/18/2019 10:15	10503189002	Water	2														
3	MW36-GW-121819	PS	12/18/2019 10:45	10503189003	Water	2														
4	MW4D-GW-121819	PS	12/18/2019 11:30	10503189004	Water	2														
5	W26-GW-121819	PS	12/18/2019 13:00	10503189005	Water	2														
6	MW13S-GW-121819	PS	12/18/2019 13:45	10503189006	Water	2														

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/19/19 14:50	<i>B. Mathews</i>	12/20/19	1315
2					
3					

Cooler Temperature on Receipt 2.0 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace Mpls

Project #:

WO#: 12139594
 PM: RK1 Due Date: 12/29/19
 CLIENT: PACE MPLS

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.7 Cooler Temp Corrected °C: 2.0 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 10.3 Date and Initials of Person Examining Contents: BM 12/20/19

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation properly preserved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review:

Lauren Ferrer

Date: 12/20/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/19/2019 Results Requested By: 1/6/2020



Workorder: 10503189 Workorder Name: Freeman,WA-Cenex Harvest Lease

Report To	Subcontract To	Requested Analysis
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333	

NaOH Zn AC
BPZ

5636267 / 4500 Sulfride

WO#: 20135689



Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NaOH	Zn	AC	BPZ	LAB USE ONLY
1	MW26-GW-121819	PS	12/18/2019 09:30	10503189001	Water	1				X
2	MW35-GW-121819	PS	12/18/2019 10:15	10503189002	Water	1				X
3	MW36-GW-121819	PS	12/18/2019 10:45	10503189003	Water	1				X
4	MW4D-GW-121819	PS	12/18/2019 11:30	10503189004	Water	1				X
5	W26-GW-121819	PS	12/18/2019 13:00	10503189005	Water	1				X
6	MW13S-GW-121819	PS	12/18/2019 13:45	10503189006	Water	1				X

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/19/19 14:15	Fed Ex		
2	Fed Ex	12-20-19 11:10	<i>[Signature]</i>	12-20-19 11:10	
3					

Cooler Temperature on Receipt: 1.1 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Receipt **WO# : 20135689**

PM: CMM Due Date: 01/06/20
CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC] Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7
 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC] Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12/21/19 JWS

Temp must be measured from Temperature blank when present Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No
 Owner Received Date: 12/19/2019 Results Requested By: 1/6/2020



Workorder: 10503189 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426	Subcontract To Pace National 12065 Lebanon Road Mt. Juliet, TN 37122 615-773-9710	Requested Analysis
--	---	--------------------

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				5644436 / RSK-175	LAB USE ONLY
						HCL	VG	9	H		
1	MW26-GW-121819	PS	12/18/2019 09:30	10503189001	Water	3				X	
2	MW35-GW-121819	PS	12/18/2019 10:15	10503189002	Water	2				X	L1172989-01
3	MW36-GW-121819	PS	12/18/2019 10:45	10503189003	Water	2				X	02
4	MW4D-GW-121819	PS	12/18/2019 11:30	10503189004	Water	2				X	03
5	W26-GW-121819	PS	12/18/2019 13:00	10503189005	Water	2				X	04
6	MW13S-GW-121819	PS	12/18/2019 13:45	10503189006	Water	3				X	05 06

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/19/19 15:00			Methane, ethane, ethene
2					
3					

Cooler Temperature on Receipt 1.1 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

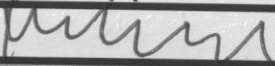
***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

1.2-.1=1.1 *wy*
RO

RAD SCREEN: <0.5 mR/hr

No 7B 14 Total
13207518 5627

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	PACETWA	L1172989
Cooler Received/Opened On:	12/20/19	Temperature:
Received By:	Michael Pappas	
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?		/	
Preservation Correct / Checked?			

January 07, 2020

David Hodson
Jacobs
155 Grand Ave
#800
Oakland, CA 94612

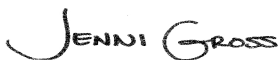
RE: Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Dear David Hodson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 20, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Steve Demus, Jacobs
Jonathan Espinoza, Jacobs
Mark Ochsner, Jacobs
Brad Ostapkowicz, Jacobs
UPRR-Sysdat@ghd.com, UPRR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Pace Analytical Services Minneapolis

<p>A2LA Certification #: 2926.01 Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009 Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605 Georgia Certification #: 959 Guam EPA Certification #: MN00064 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064 Maryland Certification #: 322 Massachusetts Certification #: M-MN064 Massachusetts DWP Certification #: via MN 027-053-137 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137</p>	<p>Minnesota Dept of Ag Certification #: via MN 027-053-137 Minnesota Petrofund Certification #: 1240 Mississippi Certification #: MN00064 Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081 New Jersey Certification #: MN002 New York Certification #: 11647 North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192 Utah Certification #: MN00064 Vermont Certification #: VT-027053137 Virginia Certification #: 460163 Washington Certification #: C486 West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01</p>
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Pace Analytical Services Virginia Minnesota

<p>315 Chestnut Street, Virginia, MN 55792 Montana Certificate #CERT0103 Alaska Certification UST-107 Minnesota Dept of Health Certification #: 027-137-445</p>	<p>North Dakota Certification: # R-203 Wisconsin DNR Certification #: 998027470 WA Department of Ecology Lab ID# C1007</p>
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Pace Analytical Services New Orleans

<p>California Env. Lab Accreditation Program Branch: 11277CA Florida Department of Health (NELAC): E87595 Illinois Environmental Protection Agency: 0025721 Kansas Department of Health and Environment (NELAC): E-10266 Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006</p>	<p>Pennsylvania Dept. of Env Protection (NELAC): 68-04202 Texas Commission on Env. Quality (NELAC): T104704405-09-TX U.S. Dept. of Agriculture Foreign Soil Import: P330-10- 00119 Commonwealth of Virginia (TNI): 480246</p>
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Pace Analytical Services National

<p>12065 Lebanon Road, Mt. Juliet, TN 37122 Alabama Certification #: 40660</p>	<p>Alaska Certification 17-026 Arizona Certification #: AZ0612</p>
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REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Pace Analytical Services National

Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364
Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975

New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10503416001	FD5-GW-121919	Water	12/19/19 08:00	12/20/19 11:25
10503416002	MW9s-GW-121919	Water	12/19/19 10:00	12/20/19 11:25
10503416004	MW25-GW-121919	Water	12/19/19 11:00	12/20/19 11:25
10503416005	MW24-GW-121919	Water	12/19/19 11:30	12/20/19 11:25
10503416006	MW8s-GW-121919	Water	12/19/19 12:00	12/20/19 11:25
10503416007	MW1s-GW-121919	Water	12/19/19 12:30	12/20/19 11:25
10503416008	MW7s-GW-121919	Water	12/19/19 13:00	12/20/19 11:25
10503416009	MW6s-GW-121919	Water	12/19/19 13:30	12/20/19 11:25
10503416010	MW10s-GW-121919	Water	12/19/19 15:00	12/20/19 11:25
10503416011	MW12s-GW-121919	Water	12/19/19 15:30	12/20/19 11:25
10503416012	FD6-GW-121919	Water	12/19/19 08:30	12/20/19 11:25
10503416013	TB2-121919	Water	12/19/19 07:30	12/20/19 11:25
10503416014	MW-11s-GW-121919	Water	12/19/19 14:30	12/20/19 11:25

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10503416001	FD5-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416002	MW9s-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416004	MW25-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416005	MW24-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416006	MW8s-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416007	MW1s-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416008	MW7s-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10503416009	MW6s-GW-121919	EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
10503416010	MW10s-GW-121919	EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
10503416011	MW12s-GW-121919	EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
10503416012	FD6-GW-121919	SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
		RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V
10503416013	TB2-121919	EPA 8260B	DS2	83	PASI-M
10503416014	MW-11s-GW-121919	RSK-175	DAH	3	PAN
		EPA 6010D	IP	16	PASI-M
		EPA 7470A	LMW	1	PASI-M
		EPA 8260B	DS2	83	PASI-M
		SM 2320B	SH4	1	PASI-M
		SM 2540C	EPT	1	PASI-M
		SM 4500-S-2 D	PNT	1	PASI-N
		EPA 300.0	KEO	3	PASI-M
		EPA 353.2	JFP	1	PASI-M
		EPA 410.4	KEO	1	PASI-M
		SM 5310C	ZJT	1	PASI-V

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10503416001	FD5-GW-121919					
EPA 6010D	Barium, Dissolved	85.3	ug/L	10.0	12/29/19 11:30	
EPA 6010D	Chromium, Dissolved	1.4J	ug/L	10.0	12/29/19 11:30	
EPA 6010D	Cobalt, Dissolved	1.6J	ug/L	10.0	12/29/19 11:30	
EPA 6010D	Copper, Dissolved	2.9J	ug/L	10.0	12/29/19 11:30	
EPA 6010D	Nickel, Dissolved	2.1J	ug/L	20.0	12/29/19 11:30	
EPA 6010D	Vanadium, Dissolved	12.7J	ug/L	15.0	12/29/19 11:30	
EPA 6010D	Zinc, Dissolved	18.1J	ug/L	20.0	12/29/19 11:30	
EPA 8260B	Carbon tetrachloride	368	ug/L	2.5	12/27/19 12:13	
EPA 8260B	Chloroform	64.2	ug/L	4.0	12/26/19 16:06	
SM 2320B	Alkalinity, Total as CaCO3	83.9	mg/L	5.0	01/02/20 14:50	
SM 2540C	Total Dissolved Solids	466	mg/L	10.0	12/26/19 15:27	
SM 4500-S-2 D	Sulfide, Total	0.070J	mg/L	0.10	12/26/19 13:13	
EPA 300.0	Chloride	78.7	mg/L	1.2	12/20/19 23:31	M1
EPA 300.0	Nitrate as N	20.0	mg/L	0.50	12/21/19 00:28	M1
EPA 300.0	Sulfate	92.6	mg/L	1.2	12/20/19 23:31	M1
EPA 353.2	Nitrogen, NO2 plus NO3	15.3	mg/L	1.0	01/04/20 11:30	FS,M6
EPA 410.4	Chemical Oxygen Demand	67.2	mg/L	50.0	12/31/19 13:15	
SM 5310C	Total Organic Carbon	1.6	mg/L	1.0	12/27/19 17:11	
10503416002	MW9s-GW-121919					
EPA 6010D	Barium, Dissolved	99.3	ug/L	10.0	12/29/19 11:33	
EPA 6010D	Chromium, Dissolved	2.1J	ug/L	10.0	12/29/19 11:33	
EPA 6010D	Cobalt, Dissolved	1.7J	ug/L	10.0	12/29/19 11:33	
EPA 6010D	Copper, Dissolved	3.7J	ug/L	10.0	12/29/19 11:33	
EPA 6010D	Lead, Dissolved	2.2J	ug/L	10.0	12/29/19 11:33	B
EPA 6010D	Nickel, Dissolved	2.5J	ug/L	20.0	12/29/19 11:33	
EPA 6010D	Vanadium, Dissolved	18.6	ug/L	15.0	12/29/19 11:33	
EPA 6010D	Zinc, Dissolved	21.4	ug/L	20.0	12/29/19 11:33	
EPA 8260B	Carbon tetrachloride	442	ug/L	5.0	12/27/19 12:37	
EPA 8260B	Chloroform	73.6	ug/L	4.0	12/26/19 16:30	
SM 2320B	Alkalinity, Total as CaCO3	200	mg/L	5.0	01/02/20 14:55	
SM 2540C	Total Dissolved Solids	468	mg/L	10.0	12/26/19 15:27	
EPA 300.0	Chloride	75.1	mg/L	1.2	12/21/19 01:42	M1
EPA 300.0	Nitrate as N	20.2	mg/L	0.50	12/21/19 09:02	M1
EPA 300.0	Sulfate	93.6	mg/L	1.2	12/21/19 01:42	M1
EPA 353.2	Nitrogen, NO2 plus NO3	14.5	mg/L	1.0	01/04/20 11:48	FS,M6
EPA 410.4	Chemical Oxygen Demand	45.2J	mg/L	50.0	12/31/19 13:15	
SM 5310C	Total Organic Carbon	1.7	mg/L	1.0	12/27/19 17:24	
10503416004	MW25-GW-121919					
EPA 6010D	Barium, Dissolved	60.2	ug/L	10.0	12/29/19 12:00	
EPA 6010D	Cobalt, Dissolved	3.5J	ug/L	10.0	12/29/19 12:00	
EPA 6010D	Copper, Dissolved	1.3J	ug/L	10.0	12/29/19 12:00	
EPA 6010D	Nickel, Dissolved	1.2J	ug/L	20.0	12/29/19 12:00	
EPA 6010D	Vanadium, Dissolved	3.0J	ug/L	15.0	12/29/19 12:00	
EPA 6010D	Zinc, Dissolved	13.1J	ug/L	20.0	12/29/19 12:00	
EPA 8260B	Carbon tetrachloride	225	ug/L	0.50	12/26/19 16:54	
EPA 8260B	Chloroform	61.2	ug/L	4.0	12/26/19 16:54	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10503416004	MW25-GW-121919					
SM 2320B	Alkalinity, Total as CaCO3	84.0	mg/L	5.0	01/02/20 15:03	
SM 2540C	Total Dissolved Solids	376	mg/L	10.0	12/26/19 15:27	
EPA 300.0	Chloride	96.8	mg/L	6.0	12/21/19 10:16	
EPA 300.0	Nitrate as N	12.5	mg/L	0.50	12/21/19 10:16	
EPA 300.0	Sulfate	66.5	mg/L	1.2	12/21/19 02:58	
EPA 353.2	Nitrogen, NO2 plus NO3	8.8	mg/L	1.0	01/04/20 13:30	FS
EPA 410.4	Chemical Oxygen Demand	22.5J	mg/L	50.0	12/31/19 13:15	
SM 5310C	Total Organic Carbon	2.7	mg/L	1.0	12/27/19 17:37	
10503416005	MW24-GW-121919					
EPA 6010D	Barium, Dissolved	217	ug/L	10.0	12/29/19 12:09	
EPA 6010D	Cobalt, Dissolved	4.5J	ug/L	10.0	12/29/19 12:09	
EPA 6010D	Copper, Dissolved	3.9J	ug/L	10.0	12/29/19 12:09	
EPA 6010D	Nickel, Dissolved	2.4J	ug/L	20.0	12/29/19 12:09	
EPA 6010D	Vanadium, Dissolved	1.1J	ug/L	15.0	12/29/19 12:09	
EPA 8260B	Carbon tetrachloride	58.6	ug/L	0.50	12/26/19 17:18	
EPA 8260B	Chloroform	24.2	ug/L	4.0	12/26/19 17:18	
SM 2320B	Alkalinity, Total as CaCO3	80.7	mg/L	5.0	01/02/20 15:08	
SM 2540C	Total Dissolved Solids	930	mg/L	20.0	12/26/19 15:27	
EPA 300.0	Chloride	477	mg/L	12.0	12/21/19 10:35	
EPA 300.0	Nitrate as N	7.1	mg/L	0.10	12/21/19 03:18	
EPA 300.0	Sulfate	77.5	mg/L	1.2	12/21/19 03:18	
EPA 353.2	Nitrogen, NO2 plus NO3	5.5	mg/L	1.0	01/04/20 13:31	FS
EPA 410.4	Chemical Oxygen Demand	77.4	mg/L	50.0	12/31/19 13:15	
SM 5310C	Total Organic Carbon	11.9	mg/L	1.0	12/27/19 17:50	
10503416006	MW8s-GW-121919					
EPA 6010D	Barium, Dissolved	36.6	ug/L	10.0	12/29/19 12:12	
EPA 6010D	Copper, Dissolved	2.4J	ug/L	10.0	12/29/19 12:12	
EPA 6010D	Nickel, Dissolved	2.2J	ug/L	20.0	12/29/19 12:12	
EPA 6010D	Vanadium, Dissolved	1.2J	ug/L	15.0	12/29/19 12:12	
EPA 6010D	Zinc, Dissolved	19.7J	ug/L	20.0	12/29/19 12:12	
EPA 8260B	Carbon tetrachloride	167	ug/L	0.50	12/26/19 17:41	
EPA 8260B	Chloroform	38.9	ug/L	4.0	12/26/19 17:41	
SM 2320B	Alkalinity, Total as CaCO3	132	mg/L	5.0	01/02/20 15:29	
SM 2540C	Total Dissolved Solids	267	mg/L	10.0	12/26/19 15:27	
EPA 300.0	Chloride	5.0	mg/L	1.2	12/21/19 03:37	
EPA 300.0	Nitrate as N	10.5	mg/L	0.50	12/21/19 10:54	
EPA 300.0	Sulfate	24.8	mg/L	1.2	12/21/19 03:37	
EPA 353.2	Nitrogen, NO2 plus NO3	8.2	mg/L	1.0	01/04/20 13:37	FS,M6
SM 5310C	Total Organic Carbon	1.6	mg/L	1.0	12/27/19 18:29	
10503416007	MW1s-GW-121919					
EPA 6010D	Barium, Dissolved	283	ug/L	10.0	12/29/19 12:15	
EPA 6010D	Beryllium, Dissolved	0.25J	ug/L	5.0	12/29/19 12:15	
EPA 6010D	Chromium, Dissolved	4.0J	ug/L	10.0	12/29/19 12:15	
EPA 6010D	Cobalt, Dissolved	0.53J	ug/L	10.0	12/29/19 12:15	
EPA 6010D	Copper, Dissolved	5.9J	ug/L	10.0	12/29/19 12:15	
EPA 6010D	Lead, Dissolved	2.3J	ug/L	10.0	12/29/19 12:15	B

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10503416007	MW1s-GW-121919					
EPA 6010D	Nickel, Dissolved	5.4J	ug/L	20.0	12/29/19 12:15	
EPA 6010D	Vanadium, Dissolved	40.9	ug/L	15.0	12/29/19 12:15	
EPA 6010D	Zinc, Dissolved	17.1J	ug/L	20.0	12/29/19 12:15	
SM 2320B	Alkalinity, Total as CaCO3	429	mg/L	5.0	01/02/20 15:35	
SM 2540C	Total Dissolved Solids	539	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	12.4	mg/L	1.2	12/27/19 19:03	M1
EPA 300.0	Nitrate as N	0.37	mg/L	0.10	12/27/19 19:03	H1,M1
EPA 300.0	Sulfate	47.9	mg/L	1.2	12/27/19 19:03	M1
EPA 410.4	Chemical Oxygen Demand	21.4J	mg/L	50.0	12/31/19 13:16	
SM 5310C	Total Organic Carbon	3.3	mg/L	1.0	12/30/19 14:51	
10503416008	MW7s-GW-121919					
EPA 6010D	Arsenic, Dissolved	4.4J	ug/L	20.0	12/29/19 12:18	
EPA 6010D	Barium, Dissolved	51.3	ug/L	10.0	12/29/19 12:18	
EPA 6010D	Copper, Dissolved	4.7J	ug/L	10.0	12/29/19 12:18	
EPA 6010D	Nickel, Dissolved	3.1J	ug/L	20.0	12/29/19 12:18	
EPA 6010D	Vanadium, Dissolved	4.9J	ug/L	15.0	12/29/19 12:18	
EPA 6010D	Zinc, Dissolved	63.4	ug/L	20.0	12/29/19 12:18	
EPA 8260B	Carbon tetrachloride	1.1	ug/L	0.50	12/26/19 18:29	
SM 2320B	Alkalinity, Total as CaCO3	79.4	mg/L	5.0	01/02/20 15:44	
SM 2540C	Total Dissolved Solids	204	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	15.6	mg/L	1.2	12/21/19 03:56	
EPA 300.0	Nitrate as N	8.6	mg/L	0.50	12/21/19 11:13	
EPA 300.0	Sulfate	20.1	mg/L	1.2	12/21/19 03:56	
EPA 353.2	Nitrogen, NO2 plus NO3	6.5	mg/L	1.0	01/04/20 13:44	FS,M6
SM 5310C	Total Organic Carbon	2.8	mg/L	1.0	12/27/19 18:55	
10503416009	MW6s-GW-121919					
EPA 6010D	Barium, Dissolved	40.5	ug/L	10.0	12/29/19 12:21	
EPA 6010D	Vanadium, Dissolved	3.9J	ug/L	15.0	12/29/19 12:21	
SM 2320B	Alkalinity, Total as CaCO3	146	mg/L	5.0	01/02/20 15:49	
SM 2540C	Total Dissolved Solids	239	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	2.3	mg/L	1.2	12/21/19 04:53	
EPA 300.0	Nitrate as N	0.32	mg/L	0.10	12/21/19 04:53	
EPA 300.0	Sulfate	2.3	mg/L	1.2	12/21/19 04:53	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.23	mg/L	0.10	01/04/20 12:58	FS
EPA 410.4	Chemical Oxygen Demand	21.8J	mg/L	50.0	12/31/19 13:17	
SM 5310C	Total Organic Carbon	0.91J	mg/L	1.0	12/27/19 19:08	
10503416010	MW10s-GW-121919					
EPA 6010D	Barium, Dissolved	28.3	ug/L	10.0	12/29/19 12:23	
EPA 6010D	Copper, Dissolved	8.9J	ug/L	10.0	12/29/19 12:23	
EPA 6010D	Nickel, Dissolved	1.3J	ug/L	20.0	12/29/19 12:23	
EPA 6010D	Vanadium, Dissolved	2.8J	ug/L	15.0	12/29/19 12:23	
SM 2320B	Alkalinity, Total as CaCO3	318	mg/L	5.0	01/02/20 15:55	
SM 2540C	Total Dissolved Solids	348	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	1.0J	mg/L	1.2	12/21/19 05:12	
EPA 300.0	Nitrate as N	0.26	mg/L	0.10	12/21/19 05:12	
EPA 300.0	Sulfate	2.4	mg/L	1.2	12/21/19 05:12	B

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10503416010	MW10s-GW-121919					
EPA 353.2	Nitrogen, NO2 plus NO3	0.20	mg/L	0.10	01/04/20 14:40	FS,M1
SM 5310C	Total Organic Carbon	0.67J	mg/L	1.0	12/27/19 19:21	
10503416011	MW12s-GW-121919					
EPA 6010D	Barium, Dissolved	197	ug/L	10.0	12/29/19 12:26	
EPA 6010D	Copper, Dissolved	1.3J	ug/L	10.0	12/29/19 12:26	
EPA 6010D	Vanadium, Dissolved	4.1J	ug/L	15.0	12/29/19 12:26	
SM 2320B	Alkalinity, Total as CaCO3	231	mg/L	5.0	01/02/20 16:03	
SM 2540C	Total Dissolved Solids	457	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	60.4	mg/L	1.2	12/21/19 05:32	
EPA 300.0	Nitrate as N	9.7	mg/L	0.50	12/21/19 11:33	
EPA 300.0	Sulfate	53.6	mg/L	1.2	12/21/19 05:32	
EPA 353.2	Nitrogen, NO2 plus NO3	7.9	mg/L	1.0	01/04/20 15:34	M6
SM 5310C	Total Organic Carbon	2.5	mg/L	1.0	12/27/19 19:34	
10503416012	FD6-GW-121919					
EPA 6010D	Barium, Dissolved	39.4	ug/L	10.0	12/29/19 12:29	
EPA 6010D	Vanadium, Dissolved	3.9J	ug/L	15.0	12/29/19 12:29	
SM 2320B	Alkalinity, Total as CaCO3	147	mg/L	5.0	01/02/20 16:10	
SM 2540C	Total Dissolved Solids	221	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	2.3	mg/L	1.2	12/21/19 05:51	
EPA 300.0	Nitrate as N	0.32	mg/L	0.10	12/21/19 05:51	
EPA 300.0	Sulfate	2.3	mg/L	1.2	12/21/19 05:51	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.23	mg/L	0.10	01/04/20 14:47	FS
EPA 410.4	Chemical Oxygen Demand	19.0J	mg/L	50.0	12/31/19 13:17	
SM 5310C	Total Organic Carbon	0.88J	mg/L	1.0	12/27/19 19:48	
10503416014	MW-11s-GW-121919					
EPA 6010D	Barium, Dissolved	50.4	ug/L	10.0	12/29/19 12:32	
EPA 6010D	Nickel, Dissolved	1.4J	ug/L	20.0	12/29/19 12:32	
EPA 6010D	Vanadium, Dissolved	6.3J	ug/L	15.0	12/29/19 12:32	
SM 2320B	Alkalinity, Total as CaCO3	210	mg/L	5.0	01/02/20 14:42	
SM 2540C	Total Dissolved Solids	247	mg/L	10.0	12/26/19 14:01	
EPA 300.0	Chloride	1.8	mg/L	1.2	12/21/19 06:10	
EPA 300.0	Nitrate as N	0.11	mg/L	0.10	12/21/19 06:10	
EPA 300.0	Sulfate	3.9	mg/L	1.2	12/21/19 06:10	B
EPA 353.2	Nitrogen, NO2 plus NO3	0.12	mg/L	0.10	01/04/20 15:49	
EPA 410.4	Chemical Oxygen Demand	48.5J	mg/L	50.0	12/31/19 13:17	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: RSK-175

Description: VOA (GC) RSK175

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for RSK-175. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 6010D

Description: 6010D MET ICP, Dissolved

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for EPA 6010D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 651578

B: Analyte was detected in the associated method blank.

- BLANK for HBN 651578 [MPRP/995 (Lab ID: 3504114)]
 - Lead, Dissolved

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 7470A

Description: 7470A Mercury, Dissolved

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

13 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 652002

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 3505914)
 - 2-Butanone (MEK)
- MS (Lab ID: 3506221)
 - 2-Butanone (MEK)
- MSD (Lab ID: 3506222)
 - 2-Butanone (MEK)

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 652002

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.

- LCS (Lab ID: 3505914)
 - 2-Butanone (MEK)

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 07, 2020

QC Batch: 651790

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503844001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3507025)
 - Tetrachloroethene
 - cis-1,2-Dichloroethene
 - o-Xylene
- MSD (Lab ID: 3507026)
 - 2,2,4-Trimethylpentane
 - Toluene
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene

QC Batch: 652002

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503902001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3506221)
 - 2,2,4-Trimethylpentane
 - Hexachloro-1,3-butadiene
 - n-Butylbenzene
- MSD (Lab ID: 3506222)
 - n-Butylbenzene
 - n-Propylbenzene

Additional Comments:

Analyte Comments:

QC Batch: 651790

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3507025)
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene
 - Tetrachloroethene
 - Trichloroethene
- MSD (Lab ID: 3507026)
 - cis-1,2-Dichloroethene
 - m&p-Xylene
 - o-Xylene
 - Tetrachloroethene

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3505277)
 - 1,2-Dichloroethene (Total)

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 07, 2020

Analyte Comments:

QC Batch: 651790

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- FD5-GW-121919 (Lab ID: 10503416001)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3505278)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3507025)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3507026)
 - 1,2-Dichloroethene (Total)
- MW10s-GW-121919 (Lab ID: 10503416010)
 - 1,2-Dichloroethene (Total)
- MW12s-GW-121919 (Lab ID: 10503416011)
 - 1,2-Dichloroethene (Total)
- MW1s-GW-121919 (Lab ID: 10503416007)
 - 1,2-Dichloroethene (Total)
- MW24-GW-121919 (Lab ID: 10503416005)
 - 1,2-Dichloroethene (Total)
- MW25-GW-121919 (Lab ID: 10503416004)
 - 1,2-Dichloroethene (Total)
- MW6s-GW-121919 (Lab ID: 10503416009)
 - 1,2-Dichloroethene (Total)
- MW7s-GW-121919 (Lab ID: 10503416008)
 - 1,2-Dichloroethene (Total)
- MW8s-GW-121919 (Lab ID: 10503416006)
 - 1,2-Dichloroethene (Total)
- MW9s-GW-121919 (Lab ID: 10503416002)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3505277)
 - Dichlorofluoromethane
- FD5-GW-121919 (Lab ID: 10503416001)
 - Dichlorofluoromethane
- LCS (Lab ID: 3505278)
 - Dichlorofluoromethane
- MS (Lab ID: 3507025)
 - Dichlorofluoromethane
- MSD (Lab ID: 3507026)
 - Dichlorofluoromethane
- MW10s-GW-121919 (Lab ID: 10503416010)
 - Dichlorofluoromethane
- MW12s-GW-121919 (Lab ID: 10503416011)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 07, 2020

Analyte Comments:

QC Batch: 651790

- MW1s-GW-121919 (Lab ID: 10503416007)
 - Dichlorofluoromethane
- MW24-GW-121919 (Lab ID: 10503416005)
 - Dichlorofluoromethane
- MW25-GW-121919 (Lab ID: 10503416004)
 - Dichlorofluoromethane
- MW6s-GW-121919 (Lab ID: 10503416009)
 - Dichlorofluoromethane
- MW7s-GW-121919 (Lab ID: 10503416008)
 - Dichlorofluoromethane
- MW8s-GW-121919 (Lab ID: 10503416006)
 - Dichlorofluoromethane
- MW9s-GW-121919 (Lab ID: 10503416002)
 - Dichlorofluoromethane

QC Batch: 652002

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3505913)
 - 1,2-Dichloroethene (Total)
- FD6-GW-121919 (Lab ID: 10503416012)
 - 1,2-Dichloroethene (Total)
- LCS (Lab ID: 3505914)
 - 1,2-Dichloroethene (Total)
- MS (Lab ID: 3506221)
 - 1,2-Dichloroethene (Total)
- MSD (Lab ID: 3506222)
 - 1,2-Dichloroethene (Total)
- MW-11s-GW-121919 (Lab ID: 10503416014)
 - 1,2-Dichloroethene (Total)
- TB2-121919 (Lab ID: 10503416013)
 - 1,2-Dichloroethene (Total)

- BLANK (Lab ID: 3505913)
 - Dichlorofluoromethane
- FD6-GW-121919 (Lab ID: 10503416012)
 - Dichlorofluoromethane
- LCS (Lab ID: 3505914)
 - Dichlorofluoromethane
- MS (Lab ID: 3506221)
 - Dichlorofluoromethane
- MSD (Lab ID: 3506222)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 8260B

Description: 8260B MSV Low Level

Client: UPRR_Jacobs

Date: January 07, 2020

Analyte Comments:

QC Batch: 652002

- MW-11s-GW-121919 (Lab ID: 10503416014)
 - Dichlorofluoromethane
- TB2-121919 (Lab ID: 10503416013)
 - Dichlorofluoromethane

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: SM 2320B

Description: 2320B Alkalinity

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 652575

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10504051001,10504051002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3508581)
 - Alkalinity, Total as CaCO₃
- MS (Lab ID: 3508583)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 3508584)
 - Alkalinity, Total as CaCO₃

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 651783

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 3505257)
- Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: SM 4500-S-2 D

Description: 4500S2D Sulfide, Total

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the recognized method holding time.

- MW1s-GW-121919 (Lab ID: 10503416007)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 651248

B: Analyte was detected in the associated method blank.

- BLANK for HBN 651248 [WETA/420 (Lab ID: 3502044)
- Sulfate

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 651248

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416001,10503416002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3502046)
 - Chloride
 - Nitrate as N
 - Sulfate
- MS (Lab ID: 3502048)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3502047)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3502049)
 - Chloride
 - Nitrate as N
 - Sulfate

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 300.0

Description: 300.0 IC Anions

Client: UPRR_Jacobs

Date: January 07, 2020

QC Batch: 651893

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3505608)
 - Chloride
 - Nitrate as N
 - Sulfate
- MSD (Lab ID: 3505609)
 - Chloride
 - Nitrate as N
 - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

11 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 652949

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416001,10503416002

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3510645)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3510644)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3510646)
 - Nitrogen, NO2 plus NO3

QC Batch: 652950

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416005,10503416006

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MSD (Lab ID: 3510652)
 - Nitrogen, NO2 plus NO3

QC Batch: 652951

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416008,10503416009

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MSD (Lab ID: 3510656)
 - Nitrogen, NO2 plus NO3

QC Batch: 652952

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416010,10503416011

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3510663)
 - Nitrogen, NO2 plus NO3

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 3510664)

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 353.2

Description: 353.2 Nitrate + Nitrite

Client: UPRR_Jacobs

Date: January 07, 2020

QC Batch: 652952

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503416010,10503416011

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- Nitrogen, NO2 plus NO3

QC Batch: 652953

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10503448004

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MSD (Lab ID: 3510672)
- Nitrogen, NO2 plus NO3

Additional Comments:

Analyte Comments:

QC Batch: 652953

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 3510671)
 - Nitrogen, NO2 plus NO3
- MSD (Lab ID: 3510672)
 - Nitrogen, NO2 plus NO3

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: EPA 410.4

Description: 410.4 COD

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Method: SM 5310C

Description: 5310C TOC

Client: UPRR_Jacobs

Date: January 07, 2020

General Information:

12 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **FD5-GW-121919** Lab ID: **10503416001** Collected: 12/19/19 08:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:39	12/31/19 09:39	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:39	12/31/19 09:39	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:39	12/31/19 09:39	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 11:30	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 11:30	7440-38-2	
Barium, Dissolved	85.3	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 11:30	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 11:30	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 11:30	7440-43-9	
Chromium, Dissolved	1.4J	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 11:30	7440-47-3	
Cobalt, Dissolved	1.6J	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 11:30	7440-48-4	
Copper, Dissolved	2.9J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 11:30	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 11:30	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 11:30	7439-98-7	
Nickel, Dissolved	2.1J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 11:30	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 11:30	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 11:30	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 11:30	7440-28-0	
Vanadium, Dissolved	12.7J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 11:30	7440-62-2	
Zinc, Dissolved	18.1J	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 11:30	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 13:58	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 16:06	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 16:06	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:06	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 16:06	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:06	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:06	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:06	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 16:06	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:06	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 16:06	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:06	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:06	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 16:06	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 16:06	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:06	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:06	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 16:06	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 16:06	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:06	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:06	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **FD5-GW-121919** Lab ID: **10503416001** Collected: 12/19/19 08:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 16:06	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:06	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 16:06	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 16:06	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 16:06	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 16:06	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:06	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 16:06	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 16:06	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 16:06	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 16:06	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 16:06	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 16:06	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:06	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:06	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 16:06	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 16:06	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 16:06	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 16:06	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 16:06	75-15-0	
Carbon tetrachloride	368	ug/L	2.5	0.94	5		12/27/19 12:13	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:06	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 16:06	75-00-3	
Chloroform	64.2	ug/L	4.0	0.45	1		12/26/19 16:06	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 16:06	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 16:06	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 16:06	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 16:06	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 16:06	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 16:06	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 16:06	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:06	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:06	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 16:06	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 16:06	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 16:06	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 16:06	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 16:06	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:06	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 16:06	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 16:06	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 16:06	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 16:06	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 16:06	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 16:06	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 16:06	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: FD5-GW-121919 **Lab ID: 10503416001** Collected: 12/19/19 08:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:06	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:06	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:06	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 16:06	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:06	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:06	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:06	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:06	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 16:06	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 16:06	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:06	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:06	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 16:06	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 16:06	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%	75-136		1		12/26/19 16:06	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/26/19 16:06	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/26/19 16:06	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	83.9	mg/L	5.0	2.0	1		01/02/20 14:50		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	466	mg/L	10.0	5.0	1		12/26/19 15:27		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	0.070J	mg/L	0.10	0.031	5		12/26/19 13:13	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	78.7	mg/L	1.2	0.12	1		12/20/19 23:31	16887-00-6	M1
Nitrate as N	20.0	mg/L	0.50	0.062	5		12/21/19 00:28	14797-55-8	M1
Sulfate	92.6	mg/L	1.2	0.28	1		12/20/19 23:31	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	15.3	mg/L	1.0	0.18	10		01/04/20 11:30		FS,M6
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	67.2	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:15		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.6	mg/L	1.0	0.39	1		12/27/19 17:11	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW9s-GW-121919 Lab ID: 10503416002 Collected: 12/19/19 10:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:11	12/31/19 09:11	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:11	12/31/19 09:11	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:11	12/31/19 09:11	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 11:33	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 11:33	7440-38-2	
Barium, Dissolved	99.3	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 11:33	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 11:33	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 11:33	7440-43-9	
Chromium, Dissolved	2.1J	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 11:33	7440-47-3	
Cobalt, Dissolved	1.7J	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 11:33	7440-48-4	
Copper, Dissolved	3.7J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 11:33	7440-50-8	
Lead, Dissolved	2.2J	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 11:33	7439-92-1	B
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 11:33	7439-98-7	
Nickel, Dissolved	2.5J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 11:33	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 11:33	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 11:33	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 11:33	7440-28-0	
Vanadium, Dissolved	18.6	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 11:33	7440-62-2	
Zinc, Dissolved	21.4	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 11:33	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:01	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 16:30	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 16:30	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:30	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 16:30	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:30	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:30	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:30	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 16:30	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:30	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 16:30	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:30	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:30	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 16:30	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 16:30	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:30	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:30	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 16:30	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 16:30	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:30	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:30	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **MW9s-GW-121919** Lab ID: **10503416002** Collected: 12/19/19 10:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 16:30	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:30	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 16:30	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 16:30	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 16:30	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 16:30	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:30	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 16:30	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 16:30	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 16:30	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 16:30	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 16:30	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 16:30	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:30	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:30	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 16:30	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 16:30	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 16:30	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 16:30	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 16:30	75-15-0	
Carbon tetrachloride	442	ug/L	5.0	1.9	10		12/27/19 12:37	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:30	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 16:30	75-00-3	
Chloroform	73.6	ug/L	4.0	0.45	1		12/26/19 16:30	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 16:30	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 16:30	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 16:30	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 16:30	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 16:30	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 16:30	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 16:30	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:30	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:30	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 16:30	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 16:30	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 16:30	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 16:30	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 16:30	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:30	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 16:30	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 16:30	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 16:30	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 16:30	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 16:30	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 16:30	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 16:30	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Sample: MW9s-GW-121919 **Lab ID: 10503416002** Collected: 12/19/19 10:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:30	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:30	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:30	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 16:30	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:30	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:30	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:30	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:30	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 16:30	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 16:30	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:30	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:30	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 16:30	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 16:30	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	75-136		1		12/26/19 16:30	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/26/19 16:30	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		12/26/19 16:30	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	200	mg/L	5.0	2.0	1		01/02/20 14:55		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	468	mg/L	10.0	5.0	1		12/26/19 15:27		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 15:44	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	75.1	mg/L	1.2	0.12	1		12/21/19 01:42	16887-00-6	M1
Nitrate as N	20.2	mg/L	0.50	0.062	5		12/21/19 09:02	14797-55-8	M1
Sulfate	93.6	mg/L	1.2	0.28	1		12/21/19 01:42	14808-79-8	M1
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	14.5	mg/L	1.0	0.18	10		01/04/20 11:48		FS,M6
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	45.2J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:15		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.7	mg/L	1.0	0.39	1		12/27/19 17:24	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW25-GW-121919 **Lab ID: 10503416004** Collected: 12/19/19 11:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:14	12/31/19 09:14	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:14	12/31/19 09:14	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:14	12/31/19 09:14	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:00	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:00	7440-38-2	
Barium, Dissolved	60.2	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:00	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:00	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:00	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:00	7440-47-3	
Cobalt, Dissolved	3.5J	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:00	7440-48-4	
Copper, Dissolved	1.3J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:00	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:00	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:00	7439-98-7	
Nickel, Dissolved	1.2J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:00	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:00	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:00	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:00	7440-28-0	
Vanadium, Dissolved	3.0J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:00	7440-62-2	
Zinc, Dissolved	13.1J	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:00	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:03	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 16:54	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 16:54	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:54	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 16:54	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:54	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 16:54	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:54	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 16:54	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:54	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 16:54	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:54	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:54	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 16:54	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 16:54	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:54	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 16:54	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 16:54	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 16:54	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:54	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:54	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW25-GW-121919 **Lab ID:** 10503416004 Collected: 12/19/19 11:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 16:54	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:54	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 16:54	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 16:54	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 16:54	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 16:54	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:54	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 16:54	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 16:54	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 16:54	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 16:54	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 16:54	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 16:54	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:54	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 16:54	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 16:54	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 16:54	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 16:54	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 16:54	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 16:54	75-15-0	
Carbon tetrachloride	225	ug/L	0.50	0.19	1		12/26/19 16:54	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:54	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 16:54	75-00-3	
Chloroform	61.2	ug/L	4.0	0.45	1		12/26/19 16:54	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 16:54	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 16:54	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 16:54	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 16:54	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 16:54	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 16:54	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 16:54	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 16:54	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:54	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 16:54	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 16:54	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 16:54	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 16:54	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 16:54	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 16:54	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 16:54	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 16:54	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 16:54	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 16:54	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 16:54	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 16:54	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 16:54	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Sample: MW25-GW-121919 **Lab ID: 10503416004** Collected: 12/19/19 11:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:54	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 16:54	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 16:54	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 16:54	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 16:54	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 16:54	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 16:54	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:54	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 16:54	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 16:54	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 16:54	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 16:54	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 16:54	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 16:54	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/26/19 16:54	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/26/19 16:54	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/26/19 16:54	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	84.0	mg/L	5.0	2.0	1		01/02/20 15:03		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	376	mg/L	10.0	5.0	1		12/26/19 15:27		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 15:45	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	96.8	mg/L	6.0	0.62	5		12/21/19 10:16	16887-00-6	
Nitrate as N	12.5	mg/L	0.50	0.062	5		12/21/19 10:16	14797-55-8	
Sulfate	66.5	mg/L	1.2	0.28	1		12/21/19 02:58	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	8.8	mg/L	1.0	0.18	10		01/04/20 13:30		FS
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	22.5J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:15		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	2.7	mg/L	1.0	0.39	1		12/27/19 17:37	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW24-GW-121919 **Lab ID: 10503416005** Collected: 12/19/19 11:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:21	12/31/19 09:21	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:21	12/31/19 09:21	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:21	12/31/19 09:21	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:09	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:09	7440-38-2	
Barium, Dissolved	217	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:09	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:09	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:09	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:09	7440-47-3	
Cobalt, Dissolved	4.5J	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:09	7440-48-4	
Copper, Dissolved	3.9J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:09	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:09	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:09	7439-98-7	
Nickel, Dissolved	2.4J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:09	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:09	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:09	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:09	7440-28-0	
Vanadium, Dissolved	1.1J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:09	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:09	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:11	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 17:18	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 17:18	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 17:18	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 17:18	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 17:18	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 17:18	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:18	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 17:18	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 17:18	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 17:18	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:18	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:18	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 17:18	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 17:18	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 17:18	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 17:18	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 17:18	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 17:18	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 17:18	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:18	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **MW24-GW-121919** Lab ID: **10503416005** Collected: 12/19/19 11:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 17:18	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:18	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 17:18	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 17:18	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 17:18	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 17:18	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:18	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 17:18	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 17:18	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 17:18	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 17:18	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 17:18	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 17:18	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 17:18	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 17:18	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 17:18	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 17:18	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 17:18	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 17:18	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 17:18	75-15-0	
Carbon tetrachloride	58.6	ug/L	0.50	0.19	1		12/26/19 17:18	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:18	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 17:18	75-00-3	
Chloroform	24.2	ug/L	4.0	0.45	1		12/26/19 17:18	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 17:18	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 17:18	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 17:18	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 17:18	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 17:18	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 17:18	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 17:18	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 17:18	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 17:18	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 17:18	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 17:18	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 17:18	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 17:18	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 17:18	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:18	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 17:18	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 17:18	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 17:18	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 17:18	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 17:18	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 17:18	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 17:18	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW24-GW-121919 **Lab ID: 10503416005** Collected: 12/19/19 11:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 17:18	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:18	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 17:18	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 17:18	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 17:18	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:18	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 17:18	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 17:18	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 17:18	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 17:18	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 17:18	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 17:18	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 17:18	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 17:18	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/26/19 17:18	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/26/19 17:18	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/26/19 17:18	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	80.7	mg/L	5.0	2.0	1		01/02/20 15:08		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	930	mg/L	20.0	10.0	1		12/26/19 15:27		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.16	mg/L	0.50	0.16	25		12/26/19 15:46	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	477	mg/L	12.0	1.2	10		12/21/19 10:35	16887-00-6	
Nitrate as N	7.1	mg/L	0.10	0.012	1		12/21/19 03:18	14797-55-8	
Sulfate	77.5	mg/L	1.2	0.28	1		12/21/19 03:18	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	5.5	mg/L	1.0	0.18	10		01/04/20 13:31		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	77.4	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:15		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	11.9	mg/L	1.0	0.39	1		12/27/19 17:50	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW8s-GW-121919 **Lab ID: 10503416006** Collected: 12/19/19 12:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:23	12/31/19 09:23	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:23	12/31/19 09:23	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:23	12/31/19 09:23	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:12	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:12	7440-38-2	
Barium, Dissolved	36.6	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:12	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:12	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:12	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:12	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:12	7440-48-4	
Copper, Dissolved	2.4J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:12	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:12	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:12	7439-98-7	
Nickel, Dissolved	2.2J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:12	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:12	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:12	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:12	7440-28-0	
Vanadium, Dissolved	1.2J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:12	7440-62-2	
Zinc, Dissolved	19.7J	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:12	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:18	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 17:41	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 17:41	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 17:41	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 17:41	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 17:41	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 17:41	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:41	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 17:41	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 17:41	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 17:41	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:41	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:41	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 17:41	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 17:41	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 17:41	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 17:41	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 17:41	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 17:41	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 17:41	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:41	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW8s-GW-121919 **Lab ID: 10503416006** Collected: 12/19/19 12:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 17:41	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:41	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 17:41	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 17:41	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 17:41	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 17:41	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:41	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 17:41	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 17:41	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 17:41	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 17:41	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 17:41	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 17:41	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 17:41	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 17:41	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 17:41	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 17:41	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 17:41	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 17:41	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 17:41	75-15-0	
Carbon tetrachloride	167	ug/L	0.50	0.19	1		12/26/19 17:41	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:41	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 17:41	75-00-3	
Chloroform	38.9	ug/L	4.0	0.45	1		12/26/19 17:41	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 17:41	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 17:41	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 17:41	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 17:41	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 17:41	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 17:41	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 17:41	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 17:41	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 17:41	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 17:41	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 17:41	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 17:41	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 17:41	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 17:41	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 17:41	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 17:41	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 17:41	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 17:41	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 17:41	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 17:41	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 17:41	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 17:41	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW8s-GW-121919 **Lab ID: 10503416006** Collected: 12/19/19 12:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 17:41	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 17:41	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 17:41	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 17:41	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 17:41	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 17:41	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 17:41	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 17:41	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 17:41	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 17:41	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 17:41	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 17:41	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 17:41	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 17:41	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/26/19 17:41	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/26/19 17:41	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		12/26/19 17:41	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	132	mg/L	5.0	2.0	1		01/02/20 15:29		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	267	mg/L	10.0	5.0	1		12/26/19 15:27		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 15:46	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	5.0	mg/L	1.2	0.12	1		12/21/19 03:37	16887-00-6	
Nitrate as N	10.5	mg/L	0.50	0.062	5		12/21/19 10:54	14797-55-8	
Sulfate	24.8	mg/L	1.2	0.28	1		12/21/19 03:37	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	8.2	mg/L	1.0	0.18	10		01/04/20 13:37		FS,M6
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:16		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.6	mg/L	1.0	0.39	1		12/27/19 18:29	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW1s-GW-121919 **Lab ID: 10503416007** Collected: 12/19/19 12:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:25	12/31/19 09:25	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:25	12/31/19 09:25	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:25	12/31/19 09:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:15	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:15	7440-38-2	
Barium, Dissolved	283	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:15	7440-39-3	
Beryllium, Dissolved	0.25J	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:15	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:15	7440-43-9	
Chromium, Dissolved	4.0J	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:15	7440-47-3	
Cobalt, Dissolved	0.53J	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:15	7440-48-4	
Copper, Dissolved	5.9J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:15	7440-50-8	
Lead, Dissolved	2.3J	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:15	7439-92-1	B
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:15	7439-98-7	
Nickel, Dissolved	5.4J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:15	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:15	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:15	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:15	7440-28-0	
Vanadium, Dissolved	40.9	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:15	7440-62-2	
Zinc, Dissolved	17.1J	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:15	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:20	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 18:05	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 18:05	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:05	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 18:05	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:05	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:05	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:05	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 18:05	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:05	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 18:05	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:05	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:05	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 18:05	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 18:05	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:05	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:05	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 18:05	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 18:05	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:05	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:05	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **MW1s-GW-121919** Lab ID: **10503416007** Collected: 12/19/19 12:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 18:05	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:05	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 18:05	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 18:05	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 18:05	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 18:05	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:05	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 18:05	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 18:05	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 18:05	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 18:05	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 18:05	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 18:05	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:05	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:05	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 18:05	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 18:05	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 18:05	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 18:05	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 18:05	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 18:05	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:05	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 18:05	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 18:05	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 18:05	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 18:05	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 18:05	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 18:05	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 18:05	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 18:05	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 18:05	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:05	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:05	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 18:05	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 18:05	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 18:05	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 18:05	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 18:05	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:05	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 18:05	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 18:05	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 18:05	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 18:05	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 18:05	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 18:05	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 18:05	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW1s-GW-121919 **Lab ID:** 10503416007 Collected: 12/19/19 12:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:05	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:05	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:05	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 18:05	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:05	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:05	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:05	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:05	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 18:05	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 18:05	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:05	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:05	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 18:05	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 18:05	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	111	%	75-136		1		12/26/19 18:05	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/26/19 18:05	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125		1		12/26/19 18:05	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	429	mg/L	5.0	2.0	1		01/02/20 15:35		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	539	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 15:47	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	12.4	mg/L	1.2	0.12	1		12/27/19 19:03	16887-00-6	M1
Nitrate as N	0.37	mg/L	0.10	0.012	1		12/27/19 19:03	14797-55-8	H1,M1
Sulfate	47.9	mg/L	1.2	0.28	1		12/27/19 19:03	14808-79-8	M1
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	21.4J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:16		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	3.3	mg/L	1.0	0.39	1		12/30/19 14:51	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW7s-GW-121919 **Lab ID: 10503416008** Collected: 12/19/19 13:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:27	12/31/19 09:27	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:27	12/31/19 09:27	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:27	12/31/19 09:27	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:18	7440-36-0	
Arsenic, Dissolved	4.4J	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:18	7440-38-2	
Barium, Dissolved	51.3	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:18	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:18	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:18	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:18	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:18	7440-48-4	
Copper, Dissolved	4.7J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:18	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:18	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:18	7439-98-7	
Nickel, Dissolved	3.1J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:18	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:18	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:18	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:18	7440-28-0	
Vanadium, Dissolved	4.9J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:18	7440-62-2	
Zinc, Dissolved	63.4	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:18	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:23	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 18:29	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 18:29	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:29	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 18:29	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:29	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:29	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:29	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 18:29	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:29	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 18:29	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:29	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:29	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 18:29	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 18:29	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:29	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:29	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 18:29	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 18:29	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:29	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:29	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **MW7s-GW-121919** Lab ID: **10503416008** Collected: 12/19/19 13:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 18:29	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:29	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 18:29	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 18:29	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 18:29	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 18:29	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:29	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 18:29	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 18:29	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 18:29	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 18:29	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 18:29	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 18:29	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:29	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:29	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 18:29	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 18:29	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 18:29	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 18:29	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 18:29	75-15-0	
Carbon tetrachloride	1.1	ug/L	0.50	0.19	1		12/26/19 18:29	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:29	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 18:29	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 18:29	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 18:29	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 18:29	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 18:29	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 18:29	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 18:29	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 18:29	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 18:29	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:29	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:29	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 18:29	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 18:29	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 18:29	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 18:29	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 18:29	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:29	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 18:29	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 18:29	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 18:29	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 18:29	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 18:29	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 18:29	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 18:29	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW7s-GW-121919 **Lab ID: 10503416008** Collected: 12/19/19 13:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:29	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:29	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:29	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 18:29	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:29	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:29	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:29	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:29	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 18:29	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 18:29	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:29	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:29	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 18:29	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 18:29	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	120	%	75-136		1		12/26/19 18:29	17060-07-0	
Toluene-d8 (S)	105	%	75-125		1		12/26/19 18:29	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1		12/26/19 18:29	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	79.4	mg/L	5.0	2.0	1		01/02/20 15:44		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	204	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 16:41	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	15.6	mg/L	1.2	0.12	1		12/21/19 03:56	16887-00-6	
Nitrate as N	8.6	mg/L	0.50	0.062	5		12/21/19 11:13	14797-55-8	
Sulfate	20.1	mg/L	1.2	0.28	1		12/21/19 03:56	14808-79-8	
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	6.5	mg/L	1.0	0.18	10		01/04/20 13:44		FS,M6
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:16		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	2.8	mg/L	1.0	0.39	1		12/27/19 18:55	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW6s-GW-121919 **Lab ID: 10503416009** Collected: 12/19/19 13:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:34	12/31/19 09:34	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:34	12/31/19 09:34	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:34	12/31/19 09:34	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:21	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:21	7440-38-2	
Barium, Dissolved	40.5	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:21	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:21	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:21	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:21	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:21	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:21	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:21	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:21	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:21	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:21	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:21	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:21	7440-28-0	
Vanadium, Dissolved	3.9J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:21	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:21	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:25	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 18:53	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 18:53	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:53	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 18:53	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:53	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 18:53	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:53	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 18:53	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:53	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 18:53	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:53	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:53	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 18:53	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 18:53	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:53	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 18:53	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 18:53	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 18:53	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:53	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:53	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW6s-GW-121919 **Lab ID: 10503416009** Collected: 12/19/19 13:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 18:53	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:53	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 18:53	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 18:53	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 18:53	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 18:53	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:53	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 18:53	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 18:53	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 18:53	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 18:53	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 18:53	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 18:53	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:53	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 18:53	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 18:53	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 18:53	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 18:53	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 18:53	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 18:53	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 18:53	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:53	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 18:53	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 18:53	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 18:53	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 18:53	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 18:53	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 18:53	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 18:53	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 18:53	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 18:53	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 18:53	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:53	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 18:53	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 18:53	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 18:53	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 18:53	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 18:53	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 18:53	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 18:53	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 18:53	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 18:53	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 18:53	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 18:53	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 18:53	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 18:53	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Sample: MW6s-GW-121919 **Lab ID: 10503416009** Collected: 12/19/19 13:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:53	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 18:53	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 18:53	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 18:53	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 18:53	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 18:53	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 18:53	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:53	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 18:53	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 18:53	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 18:53	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 18:53	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 18:53	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 18:53	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	75-136		1		12/26/19 18:53	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/26/19 18:53	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/26/19 18:53	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	146	mg/L	5.0	2.0	1		01/02/20 15:49		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	239	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.031	mg/L	0.10	0.031	5		12/26/19 16:41	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.3	mg/L	1.2	0.12	1		12/21/19 04:53	16887-00-6	
Nitrate as N	0.32	mg/L	0.10	0.012	1		12/21/19 04:53	14797-55-8	
Sulfate	2.3	mg/L	1.2	0.28	1		12/21/19 04:53	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.23	mg/L	0.10	0.018	1		01/04/20 12:58		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	21.8J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:17		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.91J	mg/L	1.0	0.39	1		12/27/19 19:08	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW10s-GW-121919 **Lab ID: 10503416010** Collected: 12/19/19 15:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 09:36	12/31/19 09:36	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 09:36	12/31/19 09:36	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 09:36	12/31/19 09:36	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:23	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:23	7440-38-2	
Barium, Dissolved	28.3	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:23	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:23	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:23	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:23	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:23	7440-48-4	
Copper, Dissolved	8.9J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:23	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:23	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:23	7439-98-7	
Nickel, Dissolved	1.3J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:23	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:23	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:23	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:23	7440-28-0	
Vanadium, Dissolved	2.8J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:23	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:23	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:28	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 19:17	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 19:17	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 19:17	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 19:17	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 19:17	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 19:17	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:17	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 19:17	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 19:17	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 19:17	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:17	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:17	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 19:17	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 19:17	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 19:17	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 19:17	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 19:17	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 19:17	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 19:17	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:17	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW10s-GW-121919 **Lab ID: 10503416010** Collected: 12/19/19 15:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 19:17	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:17	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 19:17	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 19:17	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 19:17	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 19:17	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:17	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 19:17	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 19:17	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 19:17	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 19:17	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 19:17	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 19:17	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 19:17	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 19:17	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 19:17	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 19:17	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 19:17	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 19:17	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 19:17	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 19:17	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:17	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 19:17	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 19:17	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 19:17	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 19:17	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 19:17	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 19:17	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 19:17	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 19:17	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 19:17	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 19:17	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 19:17	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 19:17	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 19:17	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 19:17	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 19:17	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 19:17	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:17	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 19:17	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 19:17	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 19:17	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 19:17	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 19:17	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 19:17	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 19:17	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW10s-GW-121919 **Lab ID:** 10503416010 Collected: 12/19/19 15:00 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 19:17	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:17	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 19:17	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 19:17	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 19:17	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:17	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 19:17	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 19:17	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 19:17	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 19:17	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 19:17	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 19:17	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 19:17	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 19:17	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/26/19 19:17	17060-07-0	
Toluene-d8 (S)	106	%	75-125		1		12/26/19 19:17	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125		1		12/26/19 19:17	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	318	mg/L	5.0	2.0	1		01/02/20 15:55		
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	348	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total Analytical Method: SM 4500-S-2 D									
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 16:41	18496-25-8	
300.0 IC Anions Analytical Method: EPA 300.0									
Chloride	1.0J	mg/L	1.2	0.12	1		12/21/19 05:12	16887-00-6	
Nitrate as N	0.26	mg/L	0.10	0.012	1		12/21/19 05:12	14797-55-8	
Sulfate	2.4	mg/L	1.2	0.28	1		12/21/19 05:12	14808-79-8	B
353.2 Nitrate + Nitrite Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	0.20	mg/L	0.10	0.018	1		01/04/20 14:40		FS,M1
410.4 COD Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:17		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	0.67J	mg/L	1.0	0.39	1		12/27/19 19:21	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW12s-GW-121919 **Lab ID:** 10503416011 Collected: 12/19/19 15:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 11:23	12/31/19 11:23	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 11:23	12/31/19 11:23	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 11:23	12/31/19 11:23	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:26	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:26	7440-38-2	
Barium, Dissolved	197	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:26	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:26	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:26	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:26	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:26	7440-48-4	
Copper, Dissolved	1.3J	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:26	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:26	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:26	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:26	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:26	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:26	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:26	7440-28-0	
Vanadium, Dissolved	4.1J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:26	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:26	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:30	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/26/19 19:41	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/26/19 19:41	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 19:41	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/26/19 19:41	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 19:41	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/26/19 19:41	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:41	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/26/19 19:41	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 19:41	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/26/19 19:41	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:41	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:41	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/26/19 19:41	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/26/19 19:41	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 19:41	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/26/19 19:41	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/26/19 19:41	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/26/19 19:41	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/26/19 19:41	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:41	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW12s-GW-121919 **Lab ID:** 10503416011 Collected: 12/19/19 15:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/26/19 19:41	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:41	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/26/19 19:41	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/26/19 19:41	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/26/19 19:41	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/26/19 19:41	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:41	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/26/19 19:41	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/26/19 19:41	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/26/19 19:41	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/26/19 19:41	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/26/19 19:41	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/26/19 19:41	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/26/19 19:41	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/26/19 19:41	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/26/19 19:41	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/26/19 19:41	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/26/19 19:41	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/26/19 19:41	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/26/19 19:41	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/26/19 19:41	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:41	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/26/19 19:41	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/26/19 19:41	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/26/19 19:41	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/26/19 19:41	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/26/19 19:41	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/26/19 19:41	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/26/19 19:41	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/26/19 19:41	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/26/19 19:41	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/26/19 19:41	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/26/19 19:41	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/26/19 19:41	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/26/19 19:41	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/26/19 19:41	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/26/19 19:41	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/26/19 19:41	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/26/19 19:41	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/26/19 19:41	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/26/19 19:41	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/26/19 19:41	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/26/19 19:41	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/26/19 19:41	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/26/19 19:41	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/26/19 19:41	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW12s-GW-121919 **Lab ID:** 10503416011 Collected: 12/19/19 15:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/26/19 19:41	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/26/19 19:41	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/26/19 19:41	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/26/19 19:41	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/26/19 19:41	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/26/19 19:41	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/26/19 19:41	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 19:41	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/26/19 19:41	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/26/19 19:41	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/26/19 19:41	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/26/19 19:41	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/26/19 19:41	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/26/19 19:41	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	75-136		1		12/26/19 19:41	17060-07-0	
Toluene-d8 (S)	104	%	75-125		1		12/26/19 19:41	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125		1		12/26/19 19:41	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	231	mg/L	5.0	2.0	1		01/02/20 16:03		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	457	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 16:42	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	60.4	mg/L	1.2	0.12	1		12/21/19 05:32	16887-00-6	
Nitrate as N	9.7	mg/L	0.50	0.062	5		12/21/19 11:33	14797-55-8	
Sulfate	53.6	mg/L	1.2	0.28	1		12/21/19 05:32	14808-79-8	
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	7.9	mg/L	1.0	0.18	10		01/04/20 15:34		M6
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	<17.0	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:17		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	2.5	mg/L	1.0	0.39	1		12/27/19 19:34	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: FD6-GW-121919 **Lab ID: 10503416012** Collected: 12/19/19 08:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 11:25	12/31/19 11:25	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 11:25	12/31/19 11:25	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 11:25	12/31/19 11:25	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:29	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:29	7440-38-2	
Barium, Dissolved	39.4	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:29	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:29	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:29	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:29	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:29	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:29	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:29	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:29	7439-98-7	
Nickel, Dissolved	<1.1	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:29	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:29	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:29	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:29	7440-28-0	
Vanadium, Dissolved	3.9J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:29	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:29	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:33	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/27/19 16:37	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/27/19 16:37	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 16:37	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/27/19 16:37	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 16:37	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 16:37	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/27/19 16:37	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/27/19 16:37	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 16:37	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/27/19 16:37	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 16:37	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 16:37	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/27/19 16:37	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/27/19 16:37	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 16:37	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 16:37	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/27/19 16:37	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/27/19 16:37	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/27/19 16:37	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/27/19 16:37	541-73-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **FD6-GW-121919** Lab ID: **10503416012** Collected: 12/19/19 08:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/27/19 16:37	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 16:37	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/27/19 16:37	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/27/19 16:37	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/27/19 16:37	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/27/19 16:37	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/27/19 16:37	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/27/19 16:37	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/27/19 16:37	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/27/19 16:37	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/27/19 16:37	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/27/19 16:37	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/27/19 16:37	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/27/19 16:37	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 16:37	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/27/19 16:37	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/27/19 16:37	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/27/19 16:37	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/27/19 16:37	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/27/19 16:37	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/27/19 16:37	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 16:37	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/27/19 16:37	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/27/19 16:37	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/27/19 16:37	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/27/19 16:37	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/27/19 16:37	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/27/19 16:37	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/27/19 16:37	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/27/19 16:37	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/27/19 16:37	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 16:37	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/27/19 16:37	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/27/19 16:37	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/27/19 16:37	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/27/19 16:37	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/27/19 16:37	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/27/19 16:37	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/27/19 16:37	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/27/19 16:37	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/27/19 16:37	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/27/19 16:37	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/27/19 16:37	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/27/19 16:37	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/27/19 16:37	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/27/19 16:37	1330-20-7	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: FD6-GW-121919 **Lab ID: 10503416012** Collected: 12/19/19 08:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/27/19 16:37	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/27/19 16:37	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/27/19 16:37	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/27/19 16:37	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/27/19 16:37	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/27/19 16:37	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/27/19 16:37	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 16:37	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/27/19 16:37	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/27/19 16:37	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 16:37	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/27/19 16:37	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/27/19 16:37	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/27/19 16:37	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	75-136		1		12/27/19 16:37	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/27/19 16:37	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1		12/27/19 16:37	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	147	mg/L	5.0	2.0	1		01/02/20 16:10		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	221	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.031	mg/L	0.10	0.031	5		12/26/19 13:15	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	2.3	mg/L	1.2	0.12	1		12/21/19 05:51	16887-00-6	
Nitrate as N	0.32	mg/L	0.10	0.012	1		12/21/19 05:51	14797-55-8	
Sulfate	2.3	mg/L	1.2	0.28	1		12/21/19 05:51	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.23	mg/L	0.10	0.018	1		01/04/20 14:47		FS
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	19.0J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:17		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.88J	mg/L	1.0	0.39	1		12/27/19 19:48	7440-44-0	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: **TB2-121919** Lab ID: **10503416013** Collected: 12/19/19 07:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/27/19 15:25	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/27/19 15:25	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 15:25	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/27/19 15:25	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 15:25	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 15:25	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/27/19 15:25	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/27/19 15:25	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 15:25	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/27/19 15:25	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 15:25	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 15:25	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/27/19 15:25	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/27/19 15:25	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 15:25	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 15:25	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/27/19 15:25	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/27/19 15:25	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/27/19 15:25	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/27/19 15:25	541-73-1	
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/27/19 15:25	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 15:25	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/27/19 15:25	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/27/19 15:25	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/27/19 15:25	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/27/19 15:25	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/27/19 15:25	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/27/19 15:25	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/27/19 15:25	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/27/19 15:25	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/27/19 15:25	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/27/19 15:25	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/27/19 15:25	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/27/19 15:25	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 15:25	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/27/19 15:25	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/27/19 15:25	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/27/19 15:25	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/27/19 15:25	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/27/19 15:25	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/27/19 15:25	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 15:25	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/27/19 15:25	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/27/19 15:25	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/27/19 15:25	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/27/19 15:25	124-48-1	

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Sample: TB2-121919 **Lab ID: 10503416013** Collected: 12/19/19 07:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/27/19 15:25	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/27/19 15:25	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/27/19 15:25	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/27/19 15:25	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/27/19 15:25	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 15:25	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/27/19 15:25	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/27/19 15:25	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/27/19 15:25	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/27/19 15:25	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/27/19 15:25	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/27/19 15:25	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/27/19 15:25	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/27/19 15:25	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/27/19 15:25	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/27/19 15:25	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/27/19 15:25	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/27/19 15:25	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/27/19 15:25	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/27/19 15:25	1330-20-7	
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/27/19 15:25	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/27/19 15:25	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/27/19 15:25	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/27/19 15:25	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/27/19 15:25	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/27/19 15:25	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/27/19 15:25	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 15:25	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/27/19 15:25	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/27/19 15:25	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 15:25	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/27/19 15:25	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/27/19 15:25	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/27/19 15:25	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	120	%	75-136		1		12/27/19 15:25	17060-07-0	
Toluene-d8 (S)	107	%	75-125		1		12/27/19 15:25	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/27/19 15:25	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW-11s-GW-121919 **Lab ID: 10503416014** Collected: 12/19/19 14:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
VOA (GC) RSK175 Analytical Method: RSK-175 Preparation Method: RSK175									
Methane	<2.91	ug/L	10.0	2.91	1	12/31/19 11:27	12/31/19 11:27	74-82-8	
Ethane	<4.07	ug/L	13.0	4.07	1	12/31/19 11:27	12/31/19 11:27	74-84-0	
Ethene	<4.26	ug/L	13.0	4.26	1	12/31/19 11:27	12/31/19 11:27	74-85-1	
6010D MET ICP, Dissolved Analytical Method: EPA 6010D Preparation Method: EPA 3010									
Antimony, Dissolved	<7.0	ug/L	20.0	7.0	1	12/27/19 06:07	12/29/19 12:32	7440-36-0	
Arsenic, Dissolved	<3.8	ug/L	20.0	3.8	1	12/27/19 06:07	12/29/19 12:32	7440-38-2	
Barium, Dissolved	50.4	ug/L	10.0	0.60	1	12/27/19 06:07	12/29/19 12:32	7440-39-3	
Beryllium, Dissolved	<0.12	ug/L	5.0	0.12	1	12/27/19 06:07	12/29/19 12:32	7440-41-7	
Cadmium, Dissolved	<0.28	ug/L	3.0	0.28	1	12/27/19 06:07	12/29/19 12:32	7440-43-9	
Chromium, Dissolved	<0.66	ug/L	10.0	0.66	1	12/27/19 06:07	12/29/19 12:32	7440-47-3	
Cobalt, Dissolved	<0.50	ug/L	10.0	0.50	1	12/27/19 06:07	12/29/19 12:32	7440-48-4	
Copper, Dissolved	<1.2	ug/L	10.0	1.2	1	12/27/19 06:07	12/29/19 12:32	7440-50-8	
Lead, Dissolved	<2.0	ug/L	10.0	2.0	1	12/27/19 06:07	12/29/19 12:32	7439-92-1	
Molybdenum, Dissolved	<3.8	ug/L	15.0	3.8	1	12/27/19 06:07	12/29/19 12:32	7439-98-7	
Nickel, Dissolved	1.4J	ug/L	20.0	1.1	1	12/27/19 06:07	12/29/19 12:32	7440-02-0	
Selenium, Dissolved	<5.8	ug/L	20.0	5.8	1	12/27/19 06:07	12/29/19 12:32	7782-49-2	
Silver, Dissolved	<0.40	ug/L	10.0	0.40	1	12/27/19 06:07	12/29/19 12:32	7440-22-4	
Thallium, Dissolved	<5.5	ug/L	20.0	5.5	1	12/27/19 06:07	12/29/19 12:32	7440-28-0	
Vanadium, Dissolved	6.3J	ug/L	15.0	0.43	1	12/27/19 06:07	12/29/19 12:32	7440-62-2	
Zinc, Dissolved	<6.3	ug/L	20.0	6.3	1	12/27/19 06:07	12/29/19 12:32	7440-66-6	
7470A Mercury, Dissolved Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury, Dissolved	<0.093	ug/L	0.20	0.093	1	12/27/19 09:10	12/30/19 14:35	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
1,1,1,2-Tetrachloroethane	<0.20	ug/L	0.50	0.20	1		12/27/19 17:01	630-20-6	
1,1,1-Trichloroethane	<0.14	ug/L	0.50	0.14	1		12/27/19 17:01	71-55-6	
1,1,2,2-Tetrachloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 17:01	79-34-5	
1,1,2-Trichloroethane	<0.18	ug/L	0.50	0.18	1		12/27/19 17:01	79-00-5	
1,1,2-Trichlorotrifluoroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 17:01	76-13-1	
1,1-Dichloroethane	<0.17	ug/L	0.50	0.17	1		12/27/19 17:01	75-34-3	
1,1-Dichloroethene	<0.16	ug/L	0.50	0.16	1		12/27/19 17:01	75-35-4	
1,1-Dichloropropene	<0.20	ug/L	1.0	0.20	1		12/27/19 17:01	563-58-6	
1,2,3-Trichlorobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 17:01	87-61-6	
1,2,3-Trichloropropane	<0.26	ug/L	4.0	0.26	1		12/27/19 17:01	96-18-4	
1,2,4-Trichlorobenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 17:01	120-82-1	
1,2,4-Trimethylbenzene	<0.20	ug/L	0.50	0.20	1		12/27/19 17:01	95-63-6	
1,2-Dibromo-3-chloropropane	<1.7	ug/L	4.0	1.7	1		12/27/19 17:01	96-12-8	
1,2-Dibromoethane (EDB)	<0.24	ug/L	0.50	0.24	1		12/27/19 17:01	106-93-4	
1,2-Dichlorobenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 17:01	95-50-1	
1,2-Dichloroethane	<0.22	ug/L	1.0	0.22	1		12/27/19 17:01	107-06-2	
1,2-Dichloroethene (Total)	<0.27	ug/L	1.0	0.27	1		12/27/19 17:01	540-59-0	N2
1,2-Dichloropropane	<0.16	ug/L	4.0	0.16	1		12/27/19 17:01	78-87-5	
1,3,5-Trimethylbenzene	<0.12	ug/L	0.50	0.12	1		12/27/19 17:01	108-67-8	
1,3-Dichlorobenzene	<0.16	ug/L	0.50	0.16	1		12/27/19 17:01	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW-11s-GW-121919 Lab ID: 10503416014 Collected: 12/19/19 14:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,3-Dichloropropane	<0.070	ug/L	0.50	0.070	1		12/27/19 17:01	142-28-9	
1,4-Dichlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 17:01	106-46-7	
1,4-Dioxane (p-Dioxane)	<54.6	ug/L	200	54.6	1		12/27/19 17:01	123-91-1	
2,2,4-Trimethylpentane	<0.19	ug/L	4.0	0.19	1		12/27/19 17:01	540-84-1	
2,2-Dichloropropane	<0.17	ug/L	1.0	0.17	1		12/27/19 17:01	594-20-7	
2-Butanone (MEK)	<0.99	ug/L	5.0	0.99	1		12/27/19 17:01	78-93-3	
2-Chlorotoluene	<0.16	ug/L	0.50	0.16	1		12/27/19 17:01	95-49-8	
2-Hexanone	<0.88	ug/L	5.0	0.88	1		12/27/19 17:01	591-78-6	
4-Chlorotoluene	<0.13	ug/L	0.50	0.13	1		12/27/19 17:01	106-43-4	
4-Methyl-2-pentanone (MIBK)	<0.42	ug/L	5.0	0.42	1		12/27/19 17:01	108-10-1	
Acetone	<9.2	ug/L	20.0	9.2	1		12/27/19 17:01	67-64-1	
Acrolein	<3.2	ug/L	40.0	3.2	1		12/27/19 17:01	107-02-8	
Acrylonitrile	<0.91	ug/L	10.0	0.91	1		12/27/19 17:01	107-13-1	
Benzene	<0.10	ug/L	0.50	0.10	1		12/27/19 17:01	71-43-2	
Bromobenzene	<0.21	ug/L	0.50	0.21	1		12/27/19 17:01	108-86-1	
Bromochloromethane	<0.27	ug/L	1.0	0.27	1		12/27/19 17:01	74-97-5	
Bromodichloromethane	<0.22	ug/L	0.50	0.22	1		12/27/19 17:01	75-27-4	
Bromoform	<0.80	ug/L	4.0	0.80	1		12/27/19 17:01	75-25-2	
Bromomethane	<1.8	ug/L	4.0	1.8	1		12/27/19 17:01	74-83-9	
Carbon disulfide	<0.19	ug/L	1.0	0.19	1		12/27/19 17:01	75-15-0	
Carbon tetrachloride	<0.19	ug/L	0.50	0.19	1		12/27/19 17:01	56-23-5	
Chlorobenzene	<0.17	ug/L	0.50	0.17	1		12/27/19 17:01	108-90-7	
Chloroethane	<0.49	ug/L	1.0	0.49	1		12/27/19 17:01	75-00-3	
Chloroform	<0.45	ug/L	4.0	0.45	1		12/27/19 17:01	67-66-3	
Chloromethane	<0.48	ug/L	4.0	0.48	1		12/27/19 17:01	74-87-3	
Dibromochloromethane	<0.12	ug/L	0.50	0.12	1		12/27/19 17:01	124-48-1	
Dibromomethane	<0.16	ug/L	1.0	0.16	1		12/27/19 17:01	74-95-3	
Dichlorodifluoromethane	<0.23	ug/L	1.0	0.23	1		12/27/19 17:01	75-71-8	
Dichlorofluoromethane	<0.14	ug/L	1.0	0.14	1		12/27/19 17:01	75-43-4	
Diisopropyl ether	<0.13	ug/L	4.0	0.13	1		12/27/19 17:01	108-20-3	
Ethyl-tert-butyl ether	<0.18	ug/L	1.0	0.18	1		12/27/19 17:01	637-92-3	
Ethylbenzene	<0.14	ug/L	0.50	0.14	1		12/27/19 17:01	100-41-4	
Hexachloro-1,3-butadiene	<0.31	ug/L	1.0	0.31	1		12/27/19 17:01	87-68-3	
Isopropylbenzene (Cumene)	<0.18	ug/L	1.0	0.18	1		12/27/19 17:01	98-82-8	
Methyl-tert-butyl ether	<0.16	ug/L	0.50	0.16	1		12/27/19 17:01	1634-04-4	
Methylene Chloride	<0.98	ug/L	4.0	0.98	1		12/27/19 17:01	75-09-2	
Naphthalene	<0.48	ug/L	1.0	0.48	1		12/27/19 17:01	91-20-3	
Styrene	<0.19	ug/L	0.50	0.19	1		12/27/19 17:01	100-42-5	
Tetrachloroethene	<0.17	ug/L	0.50	0.17	1		12/27/19 17:01	127-18-4	
Tetrahydrofuran	<2.2	ug/L	10.0	2.2	1		12/27/19 17:01	109-99-9	
Toluene	<0.083	ug/L	0.50	0.083	1		12/27/19 17:01	108-88-3	
Trichloroethene	<0.15	ug/L	0.40	0.15	1		12/27/19 17:01	79-01-6	
Trichlorofluoromethane	<0.23	ug/L	0.50	0.23	1		12/27/19 17:01	75-69-4	
Vinyl acetate	<1.1	ug/L	10.0	1.1	1		12/27/19 17:01	108-05-4	
Vinyl chloride	<0.092	ug/L	0.20	0.092	1		12/27/19 17:01	75-01-4	
Xylene (Total)	<0.31	ug/L	1.5	0.31	1		12/27/19 17:01	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Sample: MW-11s-GW-121919 **Lab ID: 10503416014** Collected: 12/19/19 14:30 Received: 12/20/19 11:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,2-Dichloroethene	<0.15	ug/L	0.50	0.15	1		12/27/19 17:01	156-59-2	
cis-1,3-Dichloropropene	<0.20	ug/L	0.50	0.20	1		12/27/19 17:01	10061-01-5	
m&p-Xylene	<0.31	ug/L	1.0	0.31	1		12/27/19 17:01	179601-23-1	
n-Butylbenzene	<0.24	ug/L	0.50	0.24	1		12/27/19 17:01	104-51-8	
n-Propylbenzene	<0.10	ug/L	0.50	0.10	1		12/27/19 17:01	103-65-1	
o-Xylene	<0.16	ug/L	0.50	0.16	1		12/27/19 17:01	95-47-6	
p-Isopropyltoluene	<0.15	ug/L	0.50	0.15	1		12/27/19 17:01	99-87-6	
sec-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 17:01	135-98-8	
tert-Amylmethyl ether	<0.11	ug/L	0.50	0.11	1		12/27/19 17:01	994-05-8	
tert-Butyl Alcohol	<1.2	ug/L	10.0	1.2	1		12/27/19 17:01	75-65-0	
tert-Butylbenzene	<0.15	ug/L	1.0	0.15	1		12/27/19 17:01	98-06-6	
trans-1,2-Dichloroethene	<0.12	ug/L	0.50	0.12	1		12/27/19 17:01	156-60-5	
trans-1,3-Dichloropropene	<0.18	ug/L	0.50	0.18	1		12/27/19 17:01	10061-02-6	
trans-1,4-Dichloro-2-butene	<2.0	ug/L	10.0	2.0	1		12/27/19 17:01	110-57-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	112	%	75-136		1		12/27/19 17:01	17060-07-0	
Toluene-d8 (S)	109	%	75-125		1		12/27/19 17:01	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1		12/27/19 17:01	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	210	mg/L	5.0	2.0	1		01/02/20 14:42		
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	247	mg/L	10.0	5.0	1		12/26/19 14:01		
4500S2D Sulfide, Total		Analytical Method: SM 4500-S-2 D							
Sulfide, Total	<0.0062	mg/L	0.020	0.0062	1		12/26/19 16:41	18496-25-8	
300.0 IC Anions		Analytical Method: EPA 300.0							
Chloride	1.8	mg/L	1.2	0.12	1		12/21/19 06:10	16887-00-6	
Nitrate as N	0.11	mg/L	0.10	0.012	1		12/21/19 06:10	14797-55-8	
Sulfate	3.9	mg/L	1.2	0.28	1		12/21/19 06:10	14808-79-8	B
353.2 Nitrate + Nitrite		Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	0.12	mg/L	0.10	0.018	1		01/04/20 15:49		
410.4 COD		Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	48.5J	mg/L	50.0	17.0	1	12/31/19 10:04	12/31/19 13:17		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<0.39	mg/L	1.0	0.39	1		12/27/19 20:01	7440-44-0	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 1403004 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10503416011, 10503416012, 10503416014

METHOD BLANK: R3487274-1 Matrix: Water

Associated Lab Samples: 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/31/19 10:00	
Ethane	ug/L	<4.07	13.0	4.07	12/31/19 10:00	
Ethene	ug/L	<4.26	13.0	4.26	12/31/19 10:00	

LABORATORY CONTROL SAMPLE & LCSD: R3487274-3 R3487274-4

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	68.0	70.9	100	105	85.0-115	4.18	20	
Ethane	ug/L	129	129	132	100	102	85.0-115	2.30	20	
Ethene	ug/L	127	124	126	97.6	99.2	85.0-115	1.60	20	

SAMPLE DUPLICATE: R3487274-2

Parameter	Units	L1173438-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	225	252	11.3	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 1404348 Analysis Method: RSK-175
 QC Batch Method: RSK175 Analysis Description: VOA (GC) RSK175
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010

METHOD BLANK: R3487215-1 Matrix: Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methane	ug/L	<2.91	10.0	2.91	12/31/19 08:21	
Ethane	ug/L	<4.07	13.0	4.07	12/31/19 08:21	
Ethene	ug/L	<4.26	13.0	4.26	12/31/19 08:21	

LABORATORY CONTROL SAMPLE & LCSD: R3487215-4 R3487215-5

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	67.8	68.7	72.3	101	107	85.0-115	5.11	20	
Ethane	ug/L	129	131	134	102	104	85.0-115	2.26	20	
Ethene	ug/L	127	125	128	98.4	101	85.0-115	2.37	20	

SAMPLE DUPLICATE: R3487215-2

Parameter	Units	L1173976-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	23.1	24.8	7.10	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

SAMPLE DUPLICATE: R3487215-3

Parameter	Units	10503416001 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	ug/L	ND	<2.91	0.00	20	
Ethane	ug/L	ND	<4.07	0.00	20	
Ethene	ug/L	ND	<4.26	0.00	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 651603 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470A Mercury Water Dissolved
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 3504212 Matrix: Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.093	0.20	0.093	12/30/19 13:53	

LABORATORY CONTROL SAMPLE: 3504213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.6	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504214 3504215

Parameter	Units	10503416004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.093	5	5	5.3	5.8	105	115	80-120	9	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 651578 Analysis Method: EPA 6010D
 QC Batch Method: EPA 3010 Analysis Description: 6010D Water Dissolved
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008,
 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 3504114 Matrix: Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008,
 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony, Dissolved	ug/L	<7.0	20.0	7.0	12/29/19 11:21	
Arsenic, Dissolved	ug/L	<3.8	20.0	3.8	12/29/19 11:21	
Barium, Dissolved	ug/L	<0.60	10.0	0.60	12/29/19 11:21	
Beryllium, Dissolved	ug/L	<0.12	5.0	0.12	12/29/19 11:21	
Cadmium, Dissolved	ug/L	<0.28	3.0	0.28	12/29/19 11:21	
Chromium, Dissolved	ug/L	<0.66	10.0	0.66	12/29/19 11:21	
Cobalt, Dissolved	ug/L	<0.50	10.0	0.50	12/29/19 11:21	
Copper, Dissolved	ug/L	<1.2	10.0	1.2	12/29/19 11:21	
Lead, Dissolved	ug/L	2.3J	10.0	2.0	12/29/19 11:21	
Molybdenum, Dissolved	ug/L	<3.8	15.0	3.8	12/29/19 11:21	
Nickel, Dissolved	ug/L	<1.1	20.0	1.1	12/29/19 11:21	
Selenium, Dissolved	ug/L	<5.8	20.0	5.8	12/29/19 11:21	
Silver, Dissolved	ug/L	<0.40	10.0	0.40	12/29/19 11:21	
Thallium, Dissolved	ug/L	<5.5	20.0	5.5	12/29/19 11:21	
Vanadium, Dissolved	ug/L	<0.43	15.0	0.43	12/29/19 11:21	
Zinc, Dissolved	ug/L	<6.3	20.0	6.3	12/29/19 11:21	

LABORATORY CONTROL SAMPLE: 3504115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	1000	1150	115	80-120	
Arsenic, Dissolved	ug/L	1000	1080	108	80-120	
Barium, Dissolved	ug/L	1000	1070	107	80-120	
Beryllium, Dissolved	ug/L	1000	1050	105	80-120	
Cadmium, Dissolved	ug/L	1000	1090	109	80-120	
Chromium, Dissolved	ug/L	1000	1080	108	80-120	
Cobalt, Dissolved	ug/L	1000	1070	107	80-120	
Copper, Dissolved	ug/L	1000	1070	107	80-120	
Lead, Dissolved	ug/L	1000	1090	109	80-120	
Molybdenum, Dissolved	ug/L	1000	1080	108	80-120	
Nickel, Dissolved	ug/L	1000	1080	108	80-120	
Selenium, Dissolved	ug/L	1000	1070	107	80-120	
Silver, Dissolved	ug/L	500	538	108	80-120	
Thallium, Dissolved	ug/L	1000	1100	110	80-120	
Vanadium, Dissolved	ug/L	1000	1050	105	80-120	
Zinc, Dissolved	ug/L	1000	1080	108	80-120	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Parameter	Units	10503416002		3504116		3504117		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Antimony, Dissolved	ug/L	<7.0	1000	1000	1160	1170	115	117	75-125	1	20			
Arsenic, Dissolved	ug/L	<3.8	1000	1000	1110	1120	111	112	75-125	1	20			
Barium, Dissolved	ug/L	99.3	1000	1000	1170	1190	107	109	75-125	1	20			
Beryllium, Dissolved	ug/L	<0.12	1000	1000	1060	1080	106	108	75-125	1	20			
Cadmium, Dissolved	ug/L	<0.28	1000	1000	1090	1110	109	111	75-125	1	20			
Chromium, Dissolved	ug/L	2.1J	1000	1000	1080	1100	108	109	75-125	1	20			
Cobalt, Dissolved	ug/L	1.7J	1000	1000	1070	1080	106	108	75-125	1	20			
Copper, Dissolved	ug/L	3.7J	1000	1000	1080	1090	107	108	75-125	1	20			
Lead, Dissolved	ug/L	2.2J	1000	1000	1080	1090	108	109	75-125	1	20			
Molybdenum, Dissolved	ug/L	<3.8	1000	1000	1070	1090	107	109	75-125	1	20			
Nickel, Dissolved	ug/L	2.5J	1000	1000	1070	1090	107	108	75-125	1	20			
Selenium, Dissolved	ug/L	<5.8	1000	1000	1080	1090	108	109	75-125	1	20			
Silver, Dissolved	ug/L	<0.40	500	500	545	550	109	110	75-125	1	20			
Thallium, Dissolved	ug/L	<5.5	1000	1000	1070	1080	106	108	75-125	2	20			
Vanadium, Dissolved	ug/L	18.6	1000	1000	1090	1100	107	108	75-125	1	20			
Zinc, Dissolved	ug/L	21.4	1000	1000	1100	1120	108	110	75-125	2	20			

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 651790 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011

METHOD BLANK: 3505277 Matrix: Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/26/19 10:54	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/26/19 10:54	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/26/19 10:54	
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/26/19 10:54	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/26/19 10:54	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/26/19 10:54	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/26/19 10:54	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/26/19 10:54	
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/26/19 10:54	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/26/19 10:54	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/26/19 10:54	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/26/19 10:54	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/26/19 10:54	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/26/19 10:54	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/26/19 10:54	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/26/19 10:54	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/26/19 10:54	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/26/19 10:54	
Acetone	ug/L	<9.2	20.0	9.2	12/26/19 10:54	
Acrolein	ug/L	<3.2	40.0	3.2	12/26/19 10:54	
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/26/19 10:54	
Benzene	ug/L	<0.10	0.50	0.10	12/26/19 10:54	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/26/19 10:54	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/26/19 10:54	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/26/19 10:54	
Bromoform	ug/L	<0.80	4.0	0.80	12/26/19 10:54	
Bromomethane	ug/L	<1.8	4.0	1.8	12/26/19 10:54	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/26/19 10:54	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

METHOD BLANK: 3505277 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/26/19 10:54	
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
Chloroethane	ug/L	<0.49	1.0	0.49	12/26/19 10:54	
Chloroform	ug/L	<0.45	4.0	0.45	12/26/19 10:54	
Chloromethane	ug/L	<0.48	4.0	0.48	12/26/19 10:54	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/26/19 10:54	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/26/19 10:54	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/26/19 10:54	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/26/19 10:54	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/26/19 10:54	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/26/19 10:54	
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/26/19 10:54	
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/26/19 10:54	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/26/19 10:54	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/26/19 10:54	
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/26/19 10:54	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/26/19 10:54	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/26/19 10:54	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/26/19 10:54	
Naphthalene	ug/L	<0.48	1.0	0.48	12/26/19 10:54	
o-Xylene	ug/L	<0.16	0.50	0.16	12/26/19 10:54	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/26/19 10:54	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/26/19 10:54	
Styrene	ug/L	<0.19	0.50	0.19	12/26/19 10:54	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/26/19 10:54	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/26/19 10:54	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/26/19 10:54	
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/26/19 10:54	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/26/19 10:54	
Toluene	ug/L	<0.083	0.50	0.083	12/26/19 10:54	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/26/19 10:54	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/26/19 10:54	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/26/19 10:54	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/26/19 10:54	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/26/19 10:54	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/26/19 10:54	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/26/19 10:54	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/26/19 10:54	
1,2-Dichloroethane-d4 (S)	%	111	75-136		12/26/19 10:54	
4-Bromofluorobenzene (S)	%	97	75-125		12/26/19 10:54	
Toluene-d8 (S)	%	104	75-125		12/26/19 10:54	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

LABORATORY CONTROL SAMPLE: 3505278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	22.2	111	68-141	
1,1,1-Trichloroethane	ug/L	20	19.9	100	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	21.8	109	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	23.0	115	69-132	
1,1-Dichloroethane	ug/L	20	19.5	97	73-125	
1,1-Dichloroethene	ug/L	20	19.6	98	71-126	
1,1-Dichloropropene	ug/L	20	18.9	95	73-126	
1,2,3-Trichlorobenzene	ug/L	20	19.1	96	72-126	
1,2,3-Trichloropropane	ug/L	20	20.8	104	75-126	
1,2,4-Trichlorobenzene	ug/L	20	19.8	99	71-134	
1,2,4-Trimethylbenzene	ug/L	20	21.3	107	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	46.7	93	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	20.4	102	75-129	
1,2-Dichlorobenzene	ug/L	20	19.3	96	75-129	
1,2-Dichloroethane	ug/L	20	17.8	89	75-125	
1,2-Dichloroethene (Total)	ug/L	40	35.7	89	74-125	N2
1,2-Dichloropropane	ug/L	20	20.0	100	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.5	107	75-127	
1,3-Dichlorobenzene	ug/L	20	19.2	96	75-126	
1,3-Dichloropropane	ug/L	20	20.0	100	75-125	
1,4-Dichlorobenzene	ug/L	20	18.3	92	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	382	96	72-129	
2,2,4-Trimethylpentane	ug/L	20	16.8	84	72-128	
2,2-Dichloropropane	ug/L	20	19.5	98	65-138	
2-Butanone (MEK)	ug/L	100	112	112	59-144	
2-Chlorotoluene	ug/L	20	21.1	106	75-127	
2-Hexanone	ug/L	100	107	107	73-134	
4-Chlorotoluene	ug/L	20	21.4	107	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	62-141	
Acetone	ug/L	100	132	132	60-137	
Acrolein	ug/L	200	257	128	60-141	
Acrylonitrile	ug/L	200	197	98	75-129	
Benzene	ug/L	20	18.2	91	73-125	
Bromobenzene	ug/L	20	18.6	93	73-125	
Bromochloromethane	ug/L	20	18.6	93	75-135	
Bromodichloromethane	ug/L	20	19.9	100	75-125	
Bromoform	ug/L	20	20.4	102	67-136	
Bromomethane	ug/L	20	19.3	97	30-150	
Carbon disulfide	ug/L	20	18.8	94	47-137	
Carbon tetrachloride	ug/L	20	20.1	101	75-125	
Chlorobenzene	ug/L	20	19.3	96	75-125	
Chloroethane	ug/L	20	20.1	100	63-136	
Chloroform	ug/L	20	19.3	97	73-128	
Chloromethane	ug/L	20	18.8	94	55-130	
cis-1,2-Dichloroethene	ug/L	20	17.4	87	75-125	
cis-1,3-Dichloropropene	ug/L	20	22.2	111	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

LABORATORY CONTROL SAMPLE: 3505278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	19.6	98	75-125	
Dibromomethane	ug/L	20	19.4	97	75-125	
Dichlorodifluoromethane	ug/L	20	20.2	101	63-132	
Dichlorofluoromethane	ug/L	20	19.9	99	68-127	
Diisopropyl ether	ug/L	20	19.3	97	71-131	
Ethyl-tert-butyl ether	ug/L	20	18.5	92	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Hexachloro-1,3-butadiene	ug/L	20	22.3	112	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.2	106	75-125	
m&p-Xylene	ug/L	40	44.2	110	75-126	
Methyl-tert-butyl ether	ug/L	20	18.4	92	75-125	
Methylene Chloride	ug/L	20	20.0	100	70-125	
n-Butylbenzene	ug/L	20	21.9	109	75-126	
n-Propylbenzene	ug/L	20	21.7	109	73-127	
Naphthalene	ug/L	20	17.7	88	63-128	
o-Xylene	ug/L	20	19.8	99	75-128	
p-Isopropyltoluene	ug/L	20	22.1	111	75-125	
sec-Butylbenzene	ug/L	20	22.1	110	75-126	
Styrene	ug/L	20	20.6	103	75-125	
tert-Amylmethyl ether	ug/L	20	17.7	88	75-125	
tert-Butyl Alcohol	ug/L	200	194	97	75-130	
tert-Butylbenzene	ug/L	20	21.2	106	75-131	
Tetrachloroethene	ug/L	20	21.7	109	74-125	
Tetrahydrofuran	ug/L	200	182	91	64-138	
Toluene	ug/L	20	19.6	98	74-125	
trans-1,2-Dichloroethene	ug/L	20	18.3	91	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.5	102	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	44.6	89	60-127	
Trichloroethene	ug/L	20	21.9	109	75-127	
Trichlorofluoromethane	ug/L	20	20.3	102	72-133	
Vinyl acetate	ug/L	20	19.7	98	61-129	
Vinyl chloride	ug/L	20	20.5	102	75-128	
Xylene (Total)	ug/L	60	64.0	107	75-125	
1,2-Dichloroethane-d4 (S)	%			93	75-136	
4-Bromofluorobenzene (S)	%			96	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507025 3507026

Parameter	Units	MS 10503844001		MSD 3507026		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result								
1,1,1,2-Tetrachloroethane	ug/L	<0.20	20	20	23.8	24.0	119	120	75-140	1	30		
1,1,1-Trichloroethane	ug/L	<0.14	20	20	22.8	23.1	114	116	74-136	1	30		
1,1,2,2-Tetrachloroethane	ug/L	<0.17	20	20	23.2	24.0	116	120	66-134	3	30		
1,1,2-Trichloroethane	ug/L	<0.18	20	20	22.3	21.8	112	109	75-126	2	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507025												3507026											
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual										
		10503844001 Result	Spike Conc.	Spike Conc.	MS Conc.																		
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	20	20	20	26.7	24.9	134	125	65-146	7	30											
1,1-Dichloroethane	ug/L	<0.17	20	20	20	22.5	21.0	112	105	68-132	7	30											
1,1-Dichloroethene	ug/L	0.60	20	20	20	23.3	21.3	114	104	66-139	9	30											
1,1-Dichloropropene	ug/L	<0.20	20	20	20	22.8	24.0	114	120	67-134	5	30											
1,2,3-Trichlorobenzene	ug/L	<0.21	20	20	20	21.5	21.4	107	107	67-129	0	30											
1,2,3-Trichloropropane	ug/L	<0.26	20	20	20	21.8	23.7	109	118	69-128	8	30											
1,2,4-Trichlorobenzene	ug/L	<0.20	20	20	20	21.6	21.7	108	108	65-140	0	30											
1,2,4-Trimethylbenzene	ug/L	<0.20	20	20	20	23.4	23.6	117	118	71-133	1	30											
1,2-Dibromo-3-chloropropane	ug/L	<1.7	50	50	50	52.1	53.2	104	106	54-138	2	30											
1,2-Dibromoethane (EDB)	ug/L	<0.24	20	20	20	23.1	23.4	116	117	68-125	1	30											
1,2-Dichlorobenzene	ug/L	<0.14	20	20	20	21.0	21.7	105	109	74-136	3	30											
1,2-Dichloroethane	ug/L	<0.22	20	20	20	19.1	17.3	95	87	68-125	10	30											
1,2-Dichloroethene (Total)	ug/L	631	40	40	40	535	501	-239	-323	71-126	7	30	N2										
1,2-Dichloropropane	ug/L	<0.16	20	20	20	21.4	21.4	107	107	67-125	0	30											
1,3,5-Trimethylbenzene	ug/L	<0.12	20	20	20	23.9	23.9	120	120	68-137	0	30											
1,3-Dichlorobenzene	ug/L	<0.16	20	20	20	21.1	21.3	105	107	75-131	1	30											
1,3-Dichloropropane	ug/L	<0.070	20	20	20	21.6	21.6	108	108	71-125	0	30											
1,4-Dichlorobenzene	ug/L	<0.17	20	20	20	19.8	20.3	99	102	74-126	3	30											
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	400	400	400	419	394	105	99	68-125	6	30											
2,2,4-Trimethylpentane	ug/L	<0.19	20	20	20	21.2	26.3	106	131	54-129	21	30	M1										
2,2-Dichloropropane	ug/L	<0.17	20	20	20	23.7	22.2	118	111	69-139	7	30											
2-Butanone (MEK)	ug/L	<0.99	100	100	100	111	120	111	120	54-144	7	30											
2-Chlorotoluene	ug/L	<0.16	20	20	20	24.1	24.5	120	122	75-134	2	30											
2-Hexanone	ug/L	<0.88	100	100	100	109	111	109	111	58-137	1	30											
4-Chlorotoluene	ug/L	<0.13	20	20	20	23.7	24.1	118	120	72-133	2	30											
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	100	100	100	113	112	113	112	60-129	0	30											
Acetone	ug/L	258	100	100	100	341	334	82	76	62-132	2	30											
Acrolein	ug/L	<3.2	200	200	200	272	250	136	125	30-150	8	30											
Acrylonitrile	ug/L	<0.91	200	200	200	219	205	110	102	68-125	7	30											
Benzene	ug/L	<0.10	20	20	20	20.3	23.7	102	118	68-125	15	30											
Bromobenzene	ug/L	<0.21	20	20	20	20.1	20.9	100	104	73-126	4	30											
Bromochloromethane	ug/L	<0.27	20	20	20	20.8	20.1	104	100	66-143	4	30											
Bromodichloromethane	ug/L	<0.22	20	20	20	21.6	21.6	108	108	74-125	0	30											
Bromoform	ug/L	<0.80	20	20	20	21.9	21.8	109	109	64-134	0	30											
Bromomethane	ug/L	<1.8	20	20	20	19.2	18.4	96	92	30-150	4	30											
Carbon disulfide	ug/L	<0.19	20	20	20	21.1	19.4	106	97	43-147	9	30											
Carbon tetrachloride	ug/L	<0.19	20	20	20	23.1	23.9	116	119	71-143	3	30											
Chlorobenzene	ug/L	<0.17	20	20	20	21.3	20.7	106	103	75-125	3	30											
Chloroethane	ug/L	<0.49	20	20	20	20.1	18.4	100	92	75-129	8	30											
Chloroform	ug/L	<0.45	20	20	20	21.0	20.9	105	104	66-132	0	30											
Chloromethane	ug/L	<0.48	20	20	20	19.2	18.4	96	92	53-137	5	30											
cis-1,2-Dichloroethene	ug/L	631	20	20	20	514	481	-584	-747	67-133	7	30	E,M1										
cis-1,3-Dichloropropene	ug/L	<0.20	20	20	20	23.3	23.5	116	118	66-125	1	30											

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Parameter	Units	10503844001		MS		MSD		3507025		3507026		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD		
Dibromochloromethane	ug/L	<0.12	20	20	22.3	21.7	112	109	62-132	3	30	
Dibromomethane	ug/L	<0.16	20	20	20.5	20.4	103	102	67-125	1	30	
Dichlorodifluoromethane	ug/L	<0.23	20	20	21.3	19.9	106	100	71-142	7	30	
Dichlorofluoromethane	ug/L	<0.14	20	20	19.9	18.7	99	94	70-131	6	30	
Diisopropyl ether	ug/L	<0.13	20	20	22.5	20.9	113	104	63-131	8	30	
Ethyl-tert-butyl ether	ug/L	<0.18	20	20	21.4	20.2	107	101	66-128	6	30	
Ethylbenzene	ug/L	31.8	20	20	53.7	52.7	110	105	74-126	2	30	
Hexachloro-1,3-butadiene	ug/L	<0.31	20	20	25.6	26.7	128	134	68-143	4	30	
Isopropylbenzene (Cumene)	ug/L	<0.18	20	20	24.1	24.0	120	119	74-130	0	30	
m&p-Xylene	ug/L	219	40	40	247	244	70	61	69-132	2	30	E,M1
Methyl-tert-butyl ether	ug/L	<0.16	20	20	21.0	19.8	105	99	65-131	6	30	
Methylene Chloride	ug/L	<0.98	20	20	21.9	20.3	109	102	57-125	7	30	
n-Butylbenzene	ug/L	<0.24	20	20	24.5	24.7	122	124	71-131	1	30	
n-Propylbenzene	ug/L	<0.10	20	20	25.0	25.2	125	126	67-138	1	30	
Naphthalene	ug/L	<0.48	20	20	19.5	20.1	97	101	60-130	3	30	
o-Xylene	ug/L	49.0	20	20	61.3	60.4	61	57	69-131	2	30	E,M1
p-Isopropyltoluene	ug/L	<0.15	20	20	24.7	24.9	124	124	72-133	1	30	
sec-Butylbenzene	ug/L	<0.15	20	20	24.6	25.0	123	125	73-134	2	30	
Styrene	ug/L	<0.19	20	20	23.2	23.1	116	116	72-125	0	30	
tert-Amylmethyl ether	ug/L	<0.11	20	20	19.6	19.7	98	98	67-125	1	30	
tert-Butyl Alcohol	ug/L	<1.2	200	200	219	212	110	106	64-137	3	30	
tert-Butylbenzene	ug/L	<0.15	20	20	23.8	24.0	119	120	70-143	1	30	
Tetrachloroethene	ug/L	64.9	20	20	90.9	87.1	130	111	72-129	4	30	E,M1
Tetrahydrofuran	ug/L	<2.2	200	200	184	210	92	105	66-128	13	30	
Toluene	ug/L	88.5	20	20	104	100	77	60	73-125	3	30	M1
trans-1,2-Dichloroethene	ug/L	<0.12	20	20	21.1	20.0	106	100	62-137	5	30	
trans-1,3-Dichloropropene	ug/L	<0.18	20	20	22.4	22.1	112	111	61-136	1	30	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	50	50	48.2	50.0	96	100	45-128	4	30	
Trichloroethene	ug/L	25.0	20	20	51.4	49.8	132	124	74-132	3	30	E
Trichlorofluoromethane	ug/L	<0.23	20	20	21.4	20.2	107	101	75-139	6	30	
Vinyl acetate	ug/L	<1.1	20	20	22.5	21.3	112	106	51-135	5	30	
Vinyl chloride	ug/L	0.16J	20	20	20.6	19.9	102	99	68-146	3	30	
Xylene (Total)	ug/L	268	60	60	309	304	67	59	67-137	2	30	ES,MS
1,2-Dichloroethane-d4 (S)	%						92	93	75-136			
4-Bromofluorobenzene (S)	%						98	100	75-125			
Toluene-d8 (S)	%						103	99	75-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 652002 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 10503416012, 10503416013, 10503416014

METHOD BLANK: 3505913 Matrix: Water

Associated Lab Samples: 10503416012, 10503416013, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.20	0.50	0.20	12/27/19 10:37	
1,1,1-Trichloroethane	ug/L	<0.14	0.50	0.14	12/27/19 10:37	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	0.50	0.17	12/27/19 10:37	
1,1,2-Trichloroethane	ug/L	<0.18	0.50	0.18	12/27/19 10:37	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.22	1.0	0.22	12/27/19 10:37	
1,1-Dichloroethane	ug/L	<0.17	0.50	0.17	12/27/19 10:37	
1,1-Dichloroethene	ug/L	<0.16	0.50	0.16	12/27/19 10:37	
1,1-Dichloropropene	ug/L	<0.20	1.0	0.20	12/27/19 10:37	MN
1,2,3-Trichlorobenzene	ug/L	<0.21	0.50	0.21	12/27/19 10:37	
1,2,3-Trichloropropane	ug/L	<0.26	4.0	0.26	12/27/19 10:37	
1,2,4-Trichlorobenzene	ug/L	<0.20	0.50	0.20	12/27/19 10:37	
1,2,4-Trimethylbenzene	ug/L	<0.20	0.50	0.20	12/27/19 10:37	
1,2-Dibromo-3-chloropropane	ug/L	<1.7	4.0	1.7	12/27/19 10:37	
1,2-Dibromoethane (EDB)	ug/L	<0.24	0.50	0.24	12/27/19 10:37	
1,2-Dichlorobenzene	ug/L	<0.14	0.50	0.14	12/27/19 10:37	
1,2-Dichloroethane	ug/L	<0.22	1.0	0.22	12/27/19 10:37	MN
1,2-Dichloroethene (Total)	ug/L	<0.27	1.0	0.27	12/27/19 10:37	N2
1,2-Dichloropropane	ug/L	<0.16	4.0	0.16	12/27/19 10:37	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.50	0.12	12/27/19 10:37	
1,3-Dichlorobenzene	ug/L	<0.16	0.50	0.16	12/27/19 10:37	
1,3-Dichloropropane	ug/L	<0.070	0.50	0.070	12/27/19 10:37	
1,4-Dichlorobenzene	ug/L	<0.17	0.50	0.17	12/27/19 10:37	
1,4-Dioxane (p-Dioxane)	ug/L	<54.6	200	54.6	12/27/19 10:37	
2,2,4-Trimethylpentane	ug/L	<0.19	4.0	0.19	12/27/19 10:37	
2,2-Dichloropropane	ug/L	<0.17	1.0	0.17	12/27/19 10:37	
2-Butanone (MEK)	ug/L	<0.99	5.0	0.99	12/27/19 10:37	
2-Chlorotoluene	ug/L	<0.16	0.50	0.16	12/27/19 10:37	
2-Hexanone	ug/L	<0.88	5.0	0.88	12/27/19 10:37	
4-Chlorotoluene	ug/L	<0.13	0.50	0.13	12/27/19 10:37	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.42	5.0	0.42	12/27/19 10:37	
Acetone	ug/L	<9.2	20.0	9.2	12/27/19 10:37	
Acrolein	ug/L	<3.2	40.0	3.2	12/27/19 10:37	MN
Acrylonitrile	ug/L	<0.91	10.0	0.91	12/27/19 10:37	
Benzene	ug/L	<0.10	0.50	0.10	12/27/19 10:37	
Bromobenzene	ug/L	<0.21	0.50	0.21	12/27/19 10:37	
Bromochloromethane	ug/L	<0.27	1.0	0.27	12/27/19 10:37	
Bromodichloromethane	ug/L	<0.22	0.50	0.22	12/27/19 10:37	
Bromoform	ug/L	<0.80	4.0	0.80	12/27/19 10:37	
Bromomethane	ug/L	<1.8	4.0	1.8	12/27/19 10:37	
Carbon disulfide	ug/L	<0.19	1.0	0.19	12/27/19 10:37	
Carbon tetrachloride	ug/L	<0.19	0.50	0.19	12/27/19 10:37	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

METHOD BLANK: 3505913

Matrix: Water

Associated Lab Samples: 10503416012, 10503416013, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorobenzene	ug/L	<0.17	0.50	0.17	12/27/19 10:37	
Chloroethane	ug/L	<0.49	1.0	0.49	12/27/19 10:37	
Chloroform	ug/L	<0.45	4.0	0.45	12/27/19 10:37	MN
Chloromethane	ug/L	<0.48	4.0	0.48	12/27/19 10:37	
cis-1,2-Dichloroethene	ug/L	<0.15	0.50	0.15	12/27/19 10:37	
cis-1,3-Dichloropropene	ug/L	<0.20	0.50	0.20	12/27/19 10:37	
Dibromochloromethane	ug/L	<0.12	0.50	0.12	12/27/19 10:37	
Dibromomethane	ug/L	<0.16	1.0	0.16	12/27/19 10:37	
Dichlorodifluoromethane	ug/L	<0.23	1.0	0.23	12/27/19 10:37	
Dichlorofluoromethane	ug/L	<0.14	1.0	0.14	12/27/19 10:37	
Diisopropyl ether	ug/L	<0.13	4.0	0.13	12/27/19 10:37	MN
Ethyl-tert-butyl ether	ug/L	<0.18	1.0	0.18	12/27/19 10:37	MN
Ethylbenzene	ug/L	<0.14	0.50	0.14	12/27/19 10:37	
Hexachloro-1,3-butadiene	ug/L	<0.31	1.0	0.31	12/27/19 10:37	
Isopropylbenzene (Cumene)	ug/L	<0.18	1.0	0.18	12/27/19 10:37	MN
m&p-Xylene	ug/L	<0.31	1.0	0.31	12/27/19 10:37	
Methyl-tert-butyl ether	ug/L	<0.16	0.50	0.16	12/27/19 10:37	
Methylene Chloride	ug/L	<0.98	4.0	0.98	12/27/19 10:37	
n-Butylbenzene	ug/L	<0.24	0.50	0.24	12/27/19 10:37	
n-Propylbenzene	ug/L	<0.10	0.50	0.10	12/27/19 10:37	
Naphthalene	ug/L	<0.48	1.0	0.48	12/27/19 10:37	
o-Xylene	ug/L	<0.16	0.50	0.16	12/27/19 10:37	
p-Isopropyltoluene	ug/L	<0.15	0.50	0.15	12/27/19 10:37	
sec-Butylbenzene	ug/L	<0.15	1.0	0.15	12/27/19 10:37	MN
Styrene	ug/L	<0.19	0.50	0.19	12/27/19 10:37	
tert-Amylmethyl ether	ug/L	<0.11	0.50	0.11	12/27/19 10:37	
tert-Butyl Alcohol	ug/L	<1.2	10.0	1.2	12/27/19 10:37	
tert-Butylbenzene	ug/L	<0.15	1.0	0.15	12/27/19 10:37	MN
Tetrachloroethene	ug/L	<0.17	0.50	0.17	12/27/19 10:37	
Tetrahydrofuran	ug/L	<2.2	10.0	2.2	12/27/19 10:37	
Toluene	ug/L	<0.083	0.50	0.083	12/27/19 10:37	
trans-1,2-Dichloroethene	ug/L	<0.12	0.50	0.12	12/27/19 10:37	
trans-1,3-Dichloropropene	ug/L	<0.18	0.50	0.18	12/27/19 10:37	
trans-1,4-Dichloro-2-butene	ug/L	<2.0	10.0	2.0	12/27/19 10:37	
Trichloroethene	ug/L	<0.15	0.40	0.15	12/27/19 10:37	
Trichlorofluoromethane	ug/L	<0.23	0.50	0.23	12/27/19 10:37	
Vinyl acetate	ug/L	<1.1	10.0	1.1	12/27/19 10:37	
Vinyl chloride	ug/L	<0.092	0.20	0.092	12/27/19 10:37	
Xylene (Total)	ug/L	<0.31	1.5	0.31	12/27/19 10:37	
1,2-Dichloroethane-d4 (S)	%	116	75-136		12/27/19 10:37	
4-Bromofluorobenzene (S)	%	106	75-125		12/27/19 10:37	
Toluene-d8 (S)	%	108	75-125		12/27/19 10:37	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

LABORATORY CONTROL SAMPLE: 3505914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	22.4	112	68-141	
1,1,1-Trichloroethane	ug/L	20	23.1	116	75-129	
1,1,2,2-Tetrachloroethane	ug/L	20	23.4	117	73-125	
1,1,2-Trichloroethane	ug/L	20	20.6	103	74-131	
1,1,2-Trichlorotrifluoroethane	ug/L	20	25.5	128	69-132	
1,1-Dichloroethane	ug/L	20	21.4	107	73-125	
1,1-Dichloroethene	ug/L	20	21.3	107	71-126	
1,1-Dichloropropene	ug/L	20	22.7	113	73-126	
1,2,3-Trichlorobenzene	ug/L	20	19.2	96	72-126	
1,2,3-Trichloropropane	ug/L	20	22.5	112	75-126	
1,2,4-Trichlorobenzene	ug/L	20	18.3	91	71-134	
1,2,4-Trimethylbenzene	ug/L	20	22.5	112	72-134	
1,2-Dibromo-3-chloropropane	ug/L	50	47.3	95	60-135	
1,2-Dibromoethane (EDB)	ug/L	20	21.7	108	75-129	
1,2-Dichlorobenzene	ug/L	20	20.5	102	75-129	
1,2-Dichloroethane	ug/L	20	18.5	93	75-125	
1,2-Dichloroethene (Total)	ug/L	40	39.7	99	74-125	N2
1,2-Dichloropropane	ug/L	20	20.5	102	75-125	
1,3,5-Trimethylbenzene	ug/L	20	22.8	114	75-127	
1,3-Dichlorobenzene	ug/L	20	20.5	102	75-126	
1,3-Dichloropropane	ug/L	20	19.8	99	75-125	
1,4-Dichlorobenzene	ug/L	20	19.4	97	75-125	
1,4-Dioxane (p-Dioxane)	ug/L	400	371	93	72-129	
2,2,4-Trimethylpentane	ug/L	20	23.6	118	72-128	
2,2-Dichloropropane	ug/L	20	23.5	117	65-138	
2-Butanone (MEK)	ug/L	100	145	145	59-144	CH,L3
2-Chlorotoluene	ug/L	20	23.2	116	75-127	
2-Hexanone	ug/L	100	111	111	73-134	
4-Chlorotoluene	ug/L	20	22.6	113	75-127	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	62-141	
Acetone	ug/L	100	133	133	60-137	
Acrolein	ug/L	200	260	130	60-141	
Acrylonitrile	ug/L	200	217	109	75-129	
Benzene	ug/L	20	21.1	106	73-125	
Bromobenzene	ug/L	20	19.6	98	73-125	
Bromochloromethane	ug/L	20	20.0	100	75-135	
Bromodichloromethane	ug/L	20	20.9	104	75-125	
Bromoform	ug/L	20	20.5	102	67-136	
Bromomethane	ug/L	20	17.4	87	30-150	
Carbon disulfide	ug/L	20	20.3	102	47-137	
Carbon tetrachloride	ug/L	20	23.0	115	75-125	
Chlorobenzene	ug/L	20	20.2	101	75-125	
Chloroethane	ug/L	20	20.1	100	63-136	
Chloroform	ug/L	20	21.5	107	73-128	
Chloromethane	ug/L	20	18.3	92	55-130	
cis-1,2-Dichloroethene	ug/L	20	20.6	103	75-125	
cis-1,3-Dichloropropene	ug/L	20	22.4	112	74-125	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

LABORATORY CONTROL SAMPLE: 3505914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	20	20.1	101	75-125	
Dibromomethane	ug/L	20	19.6	98	75-125	
Dichlorodifluoromethane	ug/L	20	18.7	93	63-132	
Dichlorofluoromethane	ug/L	20	20.0	100	68-127	
Diisopropyl ether	ug/L	20	20.9	104	71-131	
Ethyl-tert-butyl ether	ug/L	20	20.7	103	75-125	
Ethylbenzene	ug/L	20	20.3	102	75-125	
Hexachloro-1,3-butadiene	ug/L	20	23.2	116	72-134	
Isopropylbenzene (Cumene)	ug/L	20	21.3	107	75-125	
m&p-Xylene	ug/L	40	44.9	112	75-126	
Methyl-tert-butyl ether	ug/L	20	19.4	97	75-125	
Methylene Chloride	ug/L	20	20.0	100	70-125	
n-Butylbenzene	ug/L	20	23.0	115	75-126	
n-Propylbenzene	ug/L	20	23.3	117	73-127	
Naphthalene	ug/L	20	16.7	84	63-128	
o-Xylene	ug/L	20	19.5	98	75-128	
p-Isopropyltoluene	ug/L	20	23.3	116	75-125	
sec-Butylbenzene	ug/L	20	23.3	116	75-126	
Styrene	ug/L	20	20.6	103	75-125	
tert-Amylmethyl ether	ug/L	20	18.2	91	75-125	
tert-Butyl Alcohol	ug/L	200	198	99	75-130	
tert-Butylbenzene	ug/L	20	22.2	111	75-131	
Tetrachloroethene	ug/L	20	21.5	107	74-125	
Tetrahydrofuran	ug/L	200	201	101	64-138	
Toluene	ug/L	20	19.9	99	74-125	
trans-1,2-Dichloroethene	ug/L	20	19.2	96	68-128	
trans-1,3-Dichloropropene	ug/L	20	20.8	104	75-125	
trans-1,4-Dichloro-2-butene	ug/L	50	45.6	91	60-127	
Trichloroethene	ug/L	20	22.1	111	75-127	
Trichlorofluoromethane	ug/L	20	19.7	99	72-133	
Vinyl acetate	ug/L	20	22.1	111	61-129	
Vinyl chloride	ug/L	20	19.2	96	75-128	
Xylene (Total)	ug/L	60	64.4	107	75-125	
1,2-Dichloroethane-d4 (S)	%			97	75-136	
4-Bromofluorobenzene (S)	%			100	75-125	
Toluene-d8 (S)	%			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3506221 3506222

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503902001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	23.5	23.8	117	119	75-140	1	30		
1,1,1-Trichloroethane	ug/L	ND	20	20	24.6	23.2	123	116	74-136	6	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	23.6	24.5	118	123	66-134	4	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	21.6	21.1	108	106	75-126	2	30		

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		3506221				3506222						
Parameter	Units	10503902001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	29.1	28.1	145	140	65-146	3	30	
1,1-Dichloroethane	ug/L	ND	20	20	23.3	21.9	117	109	68-132	7	30	
1,1-Dichloroethene	ug/L	ND	20	20	24.7	22.2	123	111	66-139	11	30	
1,1-Dichloropropene	ug/L	ND	20	20	22.9	23.9	114	120	67-134	4	30	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	21.5	22.7	107	114	67-129	6	30	
1,2,3-Trichloropropane	ug/L	ND	20	20	23.2	23.9	116	119	69-128	3	30	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	21.9	21.5	110	107	65-140	2	30	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	24.5	25.4	122	127	71-133	4	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.7	51.5	95	103	54-138	8	30	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	21.9	22.0	109	110	68-125	1	30	
1,2-Dichlorobenzene	ug/L	ND	20	20	21.9	23.0	110	115	74-136	5	30	
1,2-Dichloroethane	ug/L	ND	20	20	19.2	20.1	96	100	68-125	5	30	
1,2-Dichloroethene (Total)	ug/L	ND	40	40	43.6	39.1	109	98	71-126	11	30	N2
1,2-Dichloropropane	ug/L	ND	20	20	21.7	21.3	108	107	67-125	2	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	25.2	26.1	126	131	68-137	4	30	
1,3-Dichlorobenzene	ug/L	ND	20	20	21.9	23.4	110	117	75-131	6	30	
1,3-Dichloropropane	ug/L	ND	20	20	21.3	20.9	106	104	71-125	2	30	
1,4-Dichlorobenzene	ug/L	ND	20	20	20.7	21.8	104	109	74-126	5	30	
1,4-Dioxane (p-Dioxane)	ug/L	ND	400	400	418	380	105	95	68-125	10	30	
2,2,4-Trimethylpentane	ug/L	ND	20	20	27.4	24.7	137	123	54-129	10	30	M1
2,2-Dichloropropane	ug/L	ND	20	20	25.5	24.3	127	122	69-139	5	30	
2-Butanone (MEK)	ug/L	ND	100	100	104	116	104	116	54-144	11	30	CH
2-Chlorotoluene	ug/L	ND	20	20	25.2	26.8	126	134	75-134	6	30	
2-Hexanone	ug/L	ND	100	100	100	109	100	109	58-137	8	30	
4-Chlorotoluene	ug/L	ND	20	20	23.7	25.5	118	127	72-133	7	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	105	108	105	108	60-129	3	30	
Acetone	ug/L	ND	100	100	91.8	96.3	92	96	62-132	5	30	
Acrolein	ug/L	ND	200	200	295	282	147	141	30-150	4	30	
Acrylonitrile	ug/L	ND	200	200	207	211	103	106	68-125	2	30	
Benzene	ug/L	ND	20	20	22.7	22.6	114	113	68-125	0	30	
Bromobenzene	ug/L	ND	20	20	20.3	21.8	102	109	73-126	7	30	
Bromochloromethane	ug/L	ND	20	20	20.7	20.3	103	101	66-143	2	30	
Bromodichloromethane	ug/L	ND	20	20	21.6	22.1	108	110	74-125	2	30	
Bromoform	ug/L	ND	20	20	20.7	21.3	103	107	64-134	3	30	
Bromomethane	ug/L	ND	20	20	20.6	18.4	103	92	30-150	11	30	
Carbon disulfide	ug/L	ND	20	20	24.0	20.4	120	102	43-147	17	30	
Carbon tetrachloride	ug/L	ND	20	20	25.5	23.5	127	117	71-143	8	30	
Chlorobenzene	ug/L	ND	20	20	21.3	21.2	107	106	75-125	0	30	
Chloroethane	ug/L	ND	20	20	23.7	19.2	119	96	75-129	21	30	
Chloroform	ug/L	ND	20	20	21.6	20.2	108	101	66-132	7	30	
Chloromethane	ug/L	ND	20	20	22.3	18.2	111	91	53-137	20	30	
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.1	20.3	106	102	67-133	4	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	21.1	19.9	106	100	66-125	6	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3506221		3506222		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10503902001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Dibromochloromethane	ug/L	ND	20	20	21.7	21.1	109	105	62-132	3	30		
Dibromomethane	ug/L	ND	20	20	20.1	20.0	101	100	67-125	1	30		
Dichlorodifluoromethane	ug/L	ND	20	20	24.7	20.8	123	104	71-142	17	30		
Dichlorofluoromethane	ug/L	ND	20	20	23.7	19.6	118	98	70-131	19	30		
Diisopropyl ether	ug/L	ND	20	20	22.0	20.8	110	104	63-131	6	30		
Ethyl-tert-butyl ether	ug/L	ND	20	20	20.6	20.6	103	103	66-128	0	30		
Ethylbenzene	ug/L	ND	20	20	22.0	22.7	110	114	74-126	3	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	30.4	24.8	152	124	68-143	21	30	M1	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	23.6	25.0	118	125	74-130	6	30		
m&p-Xylene	ug/L	ND	40	40	49.4	50.7	124	127	69-132	2	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	20.6	19.4	103	97	65-131	6	30		
Methylene Chloride	ug/L	ND	20	20	21.7	19.6	109	98	57-125	10	30		
n-Butylbenzene	ug/L	ND	20	20	27.5	26.3	137	132	71-131	4	30	M1	
n-Propylbenzene	ug/L	ND	20	20	26.1	28.3	130	142	67-138	8	30	M1	
Naphthalene	ug/L	ND	20	20	17.5	20.3	87	101	60-130	15	30		
o-Xylene	ug/L	ND	20	20	20.8	22.1	104	111	69-131	6	30		
p-Isopropyltoluene	ug/L	ND	20	20	26.5	26.2	132	131	72-133	1	30		
sec-Butylbenzene	ug/L	ND	20	20	26.7	26.3	134	131	73-134	2	30		
Styrene	ug/L	ND	20	20	21.4	22.5	107	112	72-125	5	30		
tert-Amylmethyl ether	ug/L	ND	20	20	19.7	19.9	99	100	67-125	1	30		
tert-Butyl Alcohol	ug/L	ND	200	200	218	201	109	101	64-137	8	30		
tert-Butylbenzene	ug/L	ND	20	20	25.1	25.4	126	127	70-143	1	30		
Tetrachloroethene	ug/L	ND	20	20	25.2	25.6	126	128	72-129	2	30		
Tetrahydrofuran	ug/L	ND	200	200	184	192	92	96	66-128	4	30		
Toluene	ug/L	ND	20	20	21.5	21.5	108	108	73-125	0	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.5	18.8	112	94	62-137	18	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	22.0	22.0	110	110	61-136	0	30		
trans-1,4-Dichloro-2-butene	ug/L	ND	50	50	44.9	41.1	90	82	45-128	9	30		
Trichloroethene	ug/L	ND	20	20	24.5	23.8	123	119	74-132	3	30		
Trichlorofluoromethane	ug/L	ND	20	20	24.5	21.1	122	106	75-139	15	30		
Vinyl acetate	ug/L	ND	20	20	22.4	22.1	112	111	51-135	1	30		
Vinyl chloride	ug/L	ND	20	20	24.7	20.0	124	100	68-146	21	30		
Xylene (Total)	ug/L	ND	60	60	70.2	72.8	117	121	67-137	4	30		
1,2-Dichloroethane-d4 (S)	%						102	103	75-136				
4-Bromofluorobenzene (S)	%						100	103	75-125				
Toluene-d8 (S)	%						99	99	75-125				

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652575 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012

METHOD BLANK: 3508578 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<2.0	5.0	2.0	01/02/20 13:01	

LABORATORY CONTROL SAMPLE & LCSD: 3508579 3508580

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.9	42.8	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3508581 3508582

Parameter	Units	10504051001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	33.7	40	40	60.7	66.4	67	82	80-120	9	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3508583 3508584

Parameter	Units	10504051002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	33.9	40	40	55.8	57.1	55	58	80-120	2	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652576 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10503416014

METHOD BLANK: 3508585 Matrix: Water
Associated Lab Samples: 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	2.2J	5.0	2.0	01/02/20 13:13	

LABORATORY CONTROL SAMPLE & LCSD: 3508586 3508587

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.7	42.8	107	107	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3508588 3508589

Parameter	Units	10503443001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	91.0	40	40	131	133	100	106	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3508590 3508591

Parameter	Units	10503443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	134	40	40	172	171	94	93	80-120	0	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 651779

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006

METHOD BLANK: 3505243

Matrix: Water

Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/26/19 15:27	

LABORATORY CONTROL SAMPLE & LCSD: 3505244

3505245

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1000	996	1030	100	103	80-120	3	5	

SAMPLE DUPLICATE: 3505246

Parameter	Units	10503397001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4840	4880	1	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 651783

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 3505255

Matrix: Water

Associated Lab Samples: 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	10.0	5.0	12/26/19 14:01	

LABORATORY CONTROL SAMPLE: 3505256

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 3505257

Parameter	Units	10503579002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	297	275	8	5	D6

SAMPLE DUPLICATE: 3505571

Parameter	Units	10503861001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2810	2840	1	5	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 169838 Analysis Method: SM 4500-S-2 D
 QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008,
 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 770579 Matrix: Water
 Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008,
 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	<0.0062	0.020	0.0062	12/26/19 13:08	

LABORATORY CONTROL SAMPLE: 770580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.2	0.18	90	90-110	

MATRIX SPIKE SAMPLE: 770582

Parameter	Units	10503416001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.070J	0.2	0.25	92	75-125	

SAMPLE DUPLICATE: 770581

Parameter	Units	10503416001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.070J	0.062J		20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 651248 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 3502044 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.12	1.2	0.12	12/20/19 20:38	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/20/19 20:38	
Sulfate	mg/L	0.48J	1.2	0.28	12/20/19 20:38	

LABORATORY CONTROL SAMPLE: 3502045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	13.0	104	90-110	
Nitrate as N	mg/L	1	1.1	110	90-110	
Sulfate	mg/L	12.5	12.7	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502046 3502047

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503416001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	78.7	62.5	62.5	62.5	161	161	131	132	90-110	0	20	M1
Nitrate as N	mg/L	20.0	5	5	5	25.8	25.8	116	116	90-110	0	20	M1
Sulfate	mg/L	92.6	62.5	62.5	62.5	175	175	132	131	90-110	0	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502048 3502049

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10503416002 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	75.1	62.5	62.5	62.5	158	157	133	132	90-110	1	20	M1
Nitrate as N	mg/L	20.2	5	5	5	26.0	25.9	117	115	90-110	0	20	M1
Sulfate	mg/L	93.6	62.5	62.5	62.5	175	174	130	129	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 651893 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10503416007

METHOD BLANK: 3505606 Matrix: Water
Associated Lab Samples: 10503416007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.33J	1.2	0.12	12/28/19 15:52	
Nitrate as N	mg/L	<0.012	0.10	0.012	12/28/19 15:52	
Sulfate	mg/L	0.55J	1.2	0.28	12/28/19 15:52	

LABORATORY CONTROL SAMPLE: 3505607

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	12.5	12.5	100	90-110	
Nitrate as N	mg/L	1	1.0	100	90-110	
Sulfate	mg/L	12.5	12.8	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505608 3505609

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503416007 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	12.4	12.5	12.5	27.3	26.9	119	116	116	90-110	1	20	M1
Nitrate as N	mg/L	0.37	1	1	1.7	1.6	130	128	128	90-110	1	20	M1
Sulfate	mg/L	47.9	12.5	12.5	58.8	57.9	87	80	80	90-110	1	20	M1

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652949 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503416001, 10503416002

METHOD BLANK: 3510641 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	01/04/20 12:17	FS

LABORATORY CONTROL SAMPLE: 3510642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	103	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510643 3510644

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503416001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	15.3	10	10	24.5	23.5	92	82	90-110	4	20	FS,M6	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510645 3510646

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503416002 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	14.5	10	10	23.2	26.3	87	118	90-110	13	20	FS,M6	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652950 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503416004, 10503416005, 10503416006

METHOD BLANK: 3510647 Matrix: Water
Associated Lab Samples: 10503416004, 10503416005, 10503416006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	01/04/20 12:51	FS

LABORATORY CONTROL SAMPLE: 3510648

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	103	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510649 3510650

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503416005	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	5.5	10	10	15.7	16.0	102	105	90-110	2	20	FS	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510651 3510652

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		10503416006	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Nitrogen, NO2 plus NO3	mg/L	8.2	10	10	19.0	20.6	108	124	90-110	8	20	FS,M6	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652951 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503416008, 10503416009

METHOD BLANK: 3510653 Matrix: Water
Associated Lab Samples: 10503416008, 10503416009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	01/04/20 13:26	FS

LABORATORY CONTROL SAMPLE: 3510654

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	1.0	102	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510655 3510656

Parameter	Units	10503416008		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	6.5	10	10	17.4	17.7	109	112	90-110	2	20	FS,M6	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510657 3510658

Parameter	Units	10503416009		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec					
Nitrogen, NO2 plus NO3	mg/L	0.23	1	1	1.3	1.3	104	105	90-110	1	20	FS	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652952 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503416010, 10503416011, 10503416012

METHOD BLANK: 3510660 Matrix: Water
Associated Lab Samples: 10503416010, 10503416011, 10503416012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	01/04/20 15:12	FS

LABORATORY CONTROL SAMPLE: 3510661

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.94	94	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510662 3510663

Parameter	Units	10503416010		3510663		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Nitrogen, NO2 plus NO3	mg/L	0.20	1	1	1.1	1.3	94	114	90-110	16	20	FS,M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510664 3510665

Parameter	Units	10503416011		3510665		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Nitrogen, NO2 plus NO3	mg/L	7.9	10	10	20.1	18.9	122	110	90-110	6	20	M6

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

QC Batch: 652953	Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2	Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10503416014	

METHOD BLANK: 3510669 Matrix: Water
Associated Lab Samples: 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.018	0.10	0.018	01/04/20 15:32	FS

LABORATORY CONTROL SAMPLE: 3510670

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	1	0.97	97	90-110	FS

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3510671 3510672

Parameter	Units	3510671		3510672		% Rec Limits	RPD	Max RPD	Qual			
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Nitrogen, NO2 plus NO3	mg/L	70.5	50	50	124	126	108	112	90-110	2	20	E,M6

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 652457 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 3507749 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<17.0	50.0	17.0	12/31/19 13:10	

LABORATORY CONTROL SAMPLE: 3507750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	304	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507751 3507752

Parameter	Units	10503189001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	<17.0	250	250	251	246	100	98	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3507753 3507754

Parameter	Units	10503189002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	mg/L	<17.0	250	250	257	248	103	99	90-110	4	20	

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QUALITY CONTROL DATA

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

QC Batch: 181609 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C TOC
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

METHOD BLANK: 717992 Matrix: Water
Associated Lab Samples: 10503416001, 10503416002, 10503416004, 10503416005, 10503416006, 10503416007, 10503416008, 10503416009, 10503416010, 10503416011, 10503416012, 10503416014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.39	1.0	0.39	12/27/19 15:55	

LABORATORY CONTROL SAMPLE: 717993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	23.7	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717994 717995

Parameter	Units	12139661001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Total Organic Carbon	mg/L	ND	25	25.3	25.3	101	101	80-120	0	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 717996 717997

Parameter	Units	10503273001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Total Organic Carbon	mg/L	1.0	25	25.8	25.8	99	99	80-120	0	20		

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-M	Pace Analytical Services - Minneapolis
PASI-N	Pace Analytical Services - New Orleans
PASI-V	Pace Analytical Services - Virginia

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
ES	The reported result is estimated because one or more of the constituent results are qualified as such.
FS	The sample was filtered in the laboratory prior to analysis.
H1	Analysis conducted outside the recognized method holding time.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
MN	The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule.

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QUALIFIERS

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

ANALYTE QUALIFIERS

- | | |
|----|---|
| MS | Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result. |
| N2 | The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request. |

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METHOD CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV Low Level	Water	SW-846 8260B/5030B	N/A

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease
Pace Project No.: 10503416

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10503416001	FD5-GW-121919	RSK175	1404348	RSK-175	1404348
10503416002	MW9s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416004	MW25-GW-121919	RSK175	1404348	RSK-175	1404348
10503416005	MW24-GW-121919	RSK175	1404348	RSK-175	1404348
10503416006	MW8s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416007	MW1s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416008	MW7s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416009	MW6s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416010	MW10s-GW-121919	RSK175	1404348	RSK-175	1404348
10503416011	MW12s-GW-121919	RSK175	1403004	RSK-175	1403004
10503416012	FD6-GW-121919	RSK175	1403004	RSK-175	1403004
10503416014	MW-11s-GW-121919	RSK175	1403004	RSK-175	1403004
10503416001	FD5-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416002	MW9s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416004	MW25-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416005	MW24-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416006	MW8s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416007	MW1s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416008	MW7s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416009	MW6s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416010	MW10s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416011	MW12s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416012	FD6-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416014	MW-11s-GW-121919	EPA 3010	651578	EPA 6010D	652172
10503416001	FD5-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416002	MW9s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416004	MW25-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416005	MW24-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416006	MW8s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416007	MW1s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416008	MW7s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416009	MW6s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416010	MW10s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416011	MW12s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416012	FD6-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416014	MW-11s-GW-121919	EPA 7470A	651603	EPA 7470A	652184
10503416001	FD5-GW-121919	EPA 8260B	651790		
10503416002	MW9s-GW-121919	EPA 8260B	651790		
10503416004	MW25-GW-121919	EPA 8260B	651790		
10503416005	MW24-GW-121919	EPA 8260B	651790		
10503416006	MW8s-GW-121919	EPA 8260B	651790		
10503416007	MW1s-GW-121919	EPA 8260B	651790		
10503416008	MW7s-GW-121919	EPA 8260B	651790		
10503416009	MW6s-GW-121919	EPA 8260B	651790		
10503416010	MW10s-GW-121919	EPA 8260B	651790		
10503416011	MW12s-GW-121919	EPA 8260B	651790		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10503416012	FD6-GW-121919	EPA 8260B	652002		
10503416013	TB2-121919	EPA 8260B	652002		
10503416014	MW-11s-GW-121919	EPA 8260B	652002		
10503416001	FD5-GW-121919	SM 2320B	652575		
10503416002	MW9s-GW-121919	SM 2320B	652575		
10503416004	MW25-GW-121919	SM 2320B	652575		
10503416005	MW24-GW-121919	SM 2320B	652575		
10503416006	MW8s-GW-121919	SM 2320B	652575		
10503416007	MW1s-GW-121919	SM 2320B	652575		
10503416008	MW7s-GW-121919	SM 2320B	652575		
10503416009	MW6s-GW-121919	SM 2320B	652575		
10503416010	MW10s-GW-121919	SM 2320B	652575		
10503416011	MW12s-GW-121919	SM 2320B	652575		
10503416012	FD6-GW-121919	SM 2320B	652575		
10503416014	MW-11s-GW-121919	SM 2320B	652576		
10503416001	FD5-GW-121919	SM 2540C	651779		
10503416002	MW9s-GW-121919	SM 2540C	651779		
10503416004	MW25-GW-121919	SM 2540C	651779		
10503416005	MW24-GW-121919	SM 2540C	651779		
10503416006	MW8s-GW-121919	SM 2540C	651779		
10503416007	MW1s-GW-121919	SM 2540C	651783		
10503416008	MW7s-GW-121919	SM 2540C	651783		
10503416009	MW6s-GW-121919	SM 2540C	651783		
10503416010	MW10s-GW-121919	SM 2540C	651783		
10503416011	MW12s-GW-121919	SM 2540C	651783		
10503416012	FD6-GW-121919	SM 2540C	651783		
10503416014	MW-11s-GW-121919	SM 2540C	651783		
10503416001	FD5-GW-121919	SM 4500-S-2 D	169838		
10503416002	MW9s-GW-121919	SM 4500-S-2 D	169838		
10503416004	MW25-GW-121919	SM 4500-S-2 D	169838		
10503416005	MW24-GW-121919	SM 4500-S-2 D	169838		
10503416006	MW8s-GW-121919	SM 4500-S-2 D	169838		
10503416007	MW1s-GW-121919	SM 4500-S-2 D	169838		
10503416008	MW7s-GW-121919	SM 4500-S-2 D	169838		
10503416009	MW6s-GW-121919	SM 4500-S-2 D	169838		
10503416010	MW10s-GW-121919	SM 4500-S-2 D	169838		
10503416011	MW12s-GW-121919	SM 4500-S-2 D	169838		
10503416012	FD6-GW-121919	SM 4500-S-2 D	169838		
10503416014	MW-11s-GW-121919	SM 4500-S-2 D	169838		
10503416001	FD5-GW-121919	EPA 300.0	651248		
10503416002	MW9s-GW-121919	EPA 300.0	651248		
10503416004	MW25-GW-121919	EPA 300.0	651248		
10503416005	MW24-GW-121919	EPA 300.0	651248		
10503416006	MW8s-GW-121919	EPA 300.0	651248		
10503416007	MW1s-GW-121919	EPA 300.0	651893		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Freeman,WA-Cenex Harvest Lease

Pace Project No.: 10503416

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10503416008	MW7s-GW-121919	EPA 300.0	651248		
10503416009	MW6s-GW-121919	EPA 300.0	651248		
10503416010	MW10s-GW-121919	EPA 300.0	651248		
10503416011	MW12s-GW-121919	EPA 300.0	651248		
10503416012	FD6-GW-121919	EPA 300.0	651248		
10503416014	MW-11s-GW-121919	EPA 300.0	651248		
10503416001	FD5-GW-121919	EPA 353.2	652949		
10503416002	MW9s-GW-121919	EPA 353.2	652949		
10503416004	MW25-GW-121919	EPA 353.2	652950		
10503416005	MW24-GW-121919	EPA 353.2	652950		
10503416006	MW8s-GW-121919	EPA 353.2	652950		
10503416008	MW7s-GW-121919	EPA 353.2	652951		
10503416009	MW6s-GW-121919	EPA 353.2	652951		
10503416010	MW10s-GW-121919	EPA 353.2	652952		
10503416011	MW12s-GW-121919	EPA 353.2	652952		
10503416012	FD6-GW-121919	EPA 353.2	652952		
10503416014	MW-11s-GW-121919	EPA 353.2	652953		
10503416001	FD5-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416002	MW9s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416004	MW25-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416005	MW24-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416006	MW8s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416007	MW1s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416008	MW7s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416009	MW6s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416010	MW10s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416011	MW12s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416012	FD6-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416014	MW-11s-GW-121919	EPA 410.4	652457	EPA 410.4	652490
10503416001	FD5-GW-121919	SM 5310C	181609		
10503416002	MW9s-GW-121919	SM 5310C	181609		
10503416004	MW25-GW-121919	SM 5310C	181609		
10503416005	MW24-GW-121919	SM 5310C	181609		
10503416006	MW8s-GW-121919	SM 5310C	181609		
10503416007	MW1s-GW-121919	SM 5310C	181609		
10503416008	MW7s-GW-121919	SM 5310C	181609		
10503416009	MW6s-GW-121919	SM 5310C	181609		
10503416010	MW10s-GW-121919	SM 5310C	181609		
10503416011	MW12s-GW-121919	SM 5310C	181609		
10503416012	FD6-GW-121919	SM 5310C	181609		
10503416014	MW-11s-GW-121919	SM 5310C	181609		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Section B

Section C

Required Client Information:

Required Project Information:

Invoice Information:

Company: UPRR Jacobs	Report To: Mark Ochsner, Brad Ostapkowicz	Attention: Anne Walsh	Regulatory Agency
Address: 999 W. Riverside Ave, Suite 500 Spokane, WA 99201	Copy To: Steve Demus, Jonathan Espinoza	Company: UPRR	
Email:	Copy To: David Hodson, UPRR-Sysdat@ghd.com	Address: 1400 W. 52nd Ave, Denver, CO 80221	
Phone: Fax:	Purchase Order #: PEDD# 1497	Pace Quote: Contract# 9900758938	State / Location
Requested Due Date: 10 Day Standard	Project Name: Freeman WA-Cenex Harvest Lease	Pace Project Manager: Jennifer Gross	WA / Freeman
	Project #:	Pace Profile #: 36447 / 4	

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Other Tissue	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						ANALYSES TEST	REQUESTED ANALYSIS FILTERED (Y/N)								MS/MSD Requested						
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other		Y	Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2320 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5310	Sulfide 4500		Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorus	6010 Total Iron	
1	FDS-GW-121919			WTG	G	12/19/19	0800	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
2	MW9S-GW-121919			WTG	G	12/19/19	1000	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
3	TBI-121919			WTG	G	12/19/19	0700	-	3					X	X																
4	MW2S-GW-121919			WTG	G	12/19/19	1100	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
5	MW24-GW-121919			WTG	G	12/19/19	1130	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
6	MW8S-GW-121919			WTG	G	12/19/19	1200	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
7	MW1S-GW-121919			WTG	G	12/19/19	1230	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
8	MW7S-GW-121919			WTG	G	12/19/19	1300	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
9	MW6S-GW-121919			WTG	G	12/19/19	1330	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
10	MW11S-GW-121919			WTG	G	12/19/19	1430	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
11	MW10S-GW-121919			WTG	G	12/19/19	1500	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
12	MW12S-GW-121919			WTG	G	12/19/19	1530	-	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					

MO# : 10503416

10503416

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Short hold analyses are in bold	KR SJ / Jacobs	12/19/19	15:1600	KR SJ / RACE	12-20-19	1125	Y N Y
*Field filtered by client							

Page 105 of 114	SAMPLER NAME AND SIGNATURE					TEMP In C Received on Ice (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)
	PRINT Name of SAMPLER: <i>Karla Savage</i>					
	SIGNATURE of SAMPLER: <i>KR SJ</i>			DATE Signed: <i>12/19/19</i>		

T= 1.2
22
5.4
0.3

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: UPRR Jacobs
 Address: 999 W. Riverside Ave, Suite 500
 Spokane, WA 99201
 Email:
 Phone: Fax:
 Requested Due Date: **10 Day Standard**

Section B

Required Project Information:

Report To: Mark Ochsner, Brad Ostapkowicz
 Copy To: Steve Demus, Jonathan Espinoza
 Copy To: David Hodson, UPRR-Sysdat@ghd.com
 Purchase Order #: PEDD# 1497
 Project Name: Freeman WA-Cenex Harvest Lease
 Project #:

Section C

Invoice Information:

Attention: Anne Walsh
 Company: UPRR
 Address: 1400 W. 52nd Ave, Denver, CO 80221
 Pace Quote: Contract# 9900758938
 Pace Project Manager: Jennifer Gross
 Pace Profile #: 36447 / 4

Page: **2** of **2**

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample IDs must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE DW WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAV C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Y/N	Requested Analysis Filtered (Y/N)																								
						DATE	TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Other	Analyses Test		Y	Low Level VOCs by 8260	6010/7470 TAL Dissolved Metals*	2020 Alkalinity	Chloride, Sulfate, Nitrate 300.0	2540 TDS	TOC 5810	Sulfide 4500	Methane, Ethane, Ethene RSK175	COD 410.4	Nitrate+Nitrite 353.2	4500 Total Phosphorus	6010 Total Iron	MS/MSD Requested											
1	FD6-GW-121919					12/19/19	0830	-	13	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X																
2	TBZ-121919					12/19/19	0730	-	5				X																													
3																																										
4																																										
5																																										
6																																										
7																																										
8																																										
9																																										
10																																										
11																																										
12																																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
Short hold analyses are in bold	<i>KE SE Jacobs</i>	12/19/19	1600	<i>UA RICE</i>	12-20-19	1125*	Y	N	Y
*Field filtered by client									

Page 06 of 114	SAMPLER NAME AND SIGNATURE						TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: <i>Karla Savage</i>					DATE Signed: <i>12/19/19</i>				
	SIGNATURE of SAMPLER: <i>KE SE</i>									

T= 1.20
 2.20
 5.40
 0.30

Sample Condition Upon Receipt	Client Name: UPRR Jacobs	Project #: WO# : 10503416
	Courier: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> See Exceptions	PM: JMG Due Date: 01/07/20 CLIENT: UPRR_Jacobs
Tracking Number: 7021 4975 3605		

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A
 Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No
 Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted
 T4(0254) T5(0489)

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: 1.1, 2.1, 5.3, 0.2 °C	Average Corrected Temp (no temp blank only): See Exceptions
Correction Factor: 10.1	Cooler Temp Corrected w/temp blank: 1.2, 2.2, 5.4, 0.3 °C	<input checked="" type="checkbox"/> See Exceptions <input type="checkbox"/> 1 Container


USDA Regulated Soil: (N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: **12.20.19**
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Short Hold Time Analysis (<72 hr)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input checked="" type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. No Sample 3
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception
All containers needing acid/base preservation have been checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample # 124-131/1 <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> HNO ₃ <input checked="" type="checkbox"/> H ₂ SO ₄ <input checked="" type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >12 Cyanide) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Positive for Res. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> See Exception
Exceptions VOA Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Chlorine? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No pH Paper Lot# <input checked="" type="checkbox"/> See Exception
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Res. Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	203619 1004281
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception
Trip Blank Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. 3TB For TBZ Pace Trip Blank Lot # (if purchased): 236957

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: JENNI GROSS Date: 12/23/19
 Note: Whenever there is a discrepancy affecting compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: [Signature] Page 107 of 114

	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions:

Workorder #:

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																																				
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																																				
			Multiple Cooler Project? <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																																				
			<table border="1"> <thead> <tr> <th colspan="6">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th colspan="4">Average Temp</th> </tr> </thead> <tbody> <tr> <td>0.4</td> <td>2.2</td> <td>0.5</td> <td>2.3</td> <td>1.2</td> <td>2.2</td> </tr> <tr> <td>1.9</td> <td>2.1</td> <td>2.0</td> <td>2.2</td> <td>3665</td> <td>8602</td> </tr> <tr> <td>2.1</td> <td>1.9</td> <td>2.2</td> <td>2.0</td> <td></td> <td></td> </tr> <tr> <td>0.1</td> <td>2.1</td> <td>0.2</td> <td>2.2</td> <td></td> <td></td> </tr> </tbody> </table>	No Temp Blank						Read Temp	Corrected Temp	Average Temp				0.4	2.2	0.5	2.3	1.2	2.2	1.9	2.1	2.0	2.2	3665	8602	2.1	1.9	2.2	2.0			0.1	2.1	0.2	2.2		
No Temp Blank																																							
Read Temp	Corrected Temp	Average Temp																																					
0.4	2.2	0.5	2.3	1.2	2.2																																		
1.9	2.1	2.0	2.2	3665	8602																																		
2.1	1.9	2.2	2.0																																				
0.1	2.1	0.2	2.2																																				

Tracking Number/Temperature	
70214575 3665	1.2
8602	2.2
8613	5.4
8598	0.3
Coolers 3 & 4 Hard temp blanks	

Other Issues		
Issue Type: <i>Out of PH</i>	Container Type	# of Containers
Sample ID		
MW15-GW-121919	BP22	1

pH Adjustment Log for Preserved Samples

Out of PH Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
MW15-GW-121919	Zinc	11						<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

Sample Condition Upon Receipt

Client Name: Pace MN Project #: _____

WO# : 12139657



12139657

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: Fed Ex

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.1 Cooler Temp Corrected °C: 1.4 Biological Tissue Frozen? Yes No NA

Temp should be above freezing to 6°C Correction Factor: 1.3 Date and Initials of Person Examining Contents: TJL 12-24-19

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name and Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	If Fecal: <input type="checkbox"/> <8 hours <input type="checkbox"/> >8, <24 hours <input type="checkbox"/> >24 hours
Short Hold Time Analysis (<72 hr)?	<u>TB 12-24-19</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
All containers needing acid/base preservation properly preserved?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	Note samples needing adjustment:
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DE HNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 20135894



Chain of Custody -



Samples were sent direct

State Of Origin: WA

Cert. Needed: Yes No

Owner Received Date: 12/20/2019 Results Requested By: 1/7/2020

Workorder: 10503416 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To		Subcontract To					Requested Analysis												
Jennifer Gross Pace Analytical Seattle 596 Industry Drive, Suite 602 Tukwila, WA 98188 Phone (206)957-2426		Pace Analytical New Orleans 1000 Riverbend Blvd Suite F St. Rose, LA 70087 Phone (504)469-0333																	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NaOH BP2Z	NaOH Zn Ac	BP2Z	Ac								LAB USE ONLY		
										5636267 / 4500 Sulfide									
1	FD5-GW-121919	PS	12/19/2019 08:00	10503416001	Water	1				X									
2	MW9s-GW-121919	PS	12/19/2019 10:00	10503416002	Water	1				X									
3	MW25-GW-121919	PS	12/19/2019 11:00	10503416004	Water	1				X									
4	MW24-GW-121919	PS	12/19/2019 11:30	10503416005	Water	1				X									
5	MW8s-GW-121919	PS	12/19/2019 12:00	10503416006	Water	1				X									
6	MW1s-GW-121919	PS	12/19/2019 12:30	10503416007	Water	1				X									
7	MW7s-GW-121919	PS	12/19/2019 13:00	10503416008	Water	1				X									
8	MW6s-GW-121919	PS	12/19/2019 13:30	10503416009	Water	1				X									
9	MW10s-GW-121919	PS	12/19/2019 15:00	10503416010	Water	1				X									
10	MW12s-GW-121919	PS	12/19/2019 15:30	10503416011	Water	1				X									
11	FD6-GW-121919	PS	12/19/2019 08:30	10503416012	Water	1				X									
12	MW-11s-GW-121919	PS	12/19/2019 14:30	10503416014	Water	1				X									
											Comments								
Transfers	Released By	Date/Time	Received By	Date/Time															
1		12/23/19 16:30																	
2				12/24 0955															
3																			
Cooler Temperature on Receipt <u>0.8</u> °C		Custody Seal <u>Y</u> or N		Received on Ice <u>Y</u> or N		Samples Intact <u>Y</u> or N													

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Page 111 of 114



Sample Condition Upc

WO#: 20135894

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

PM: CMM Due Date: 01/08/20
CLIENT: PASI-MINN

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC] Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 7 Therm Fisher IR 10

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC] Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12-24-197

Temp must be measured from Temperature blank when present Comments:

Table with 3 columns: Question, Yes/No/N/A checkboxes, and Number. Rows include Temperature Blank Present, Chain of Custody Present, Chain of Custody Complete, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Sufficient Volume, Correct Containers Used, Filtered vol. Rec. for Diss. tests, Sample Labels match COC, All containers received within manufacture's precautionary and/or expiration dates, All containers needing chemical preservation have been checked, All containers preservation checked found to be in compliance with EPA recommendation, Headspace in VOA Vials (>6mm), Trip Blank Present.

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution:

Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WA
 Cert. Needed: Yes No
 Owner Received Date: 12/20/2019 Results Requested By: 1/7/2020

Workorder: 10503416 Workorder Name: Freeman, WA-Cenex Harvest Lease

Report To	Subcontract To	Requested Analysis
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Jennifer Gross
 Pace Analytical Seattle
 596 Industry Drive,
 Suite 602
 Tukwila, WA 98188
 Phone (206)957-2426

Pace Analytical National
 12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 615-773-9710

5644436 / RSK-175

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				X	LAB USE ONLY
						HCl	VG	9	H		
1	FD5-GW-121919	PS	12/19/2019 08:00	10503416001	Water	2				X	L1174604-01
2	MW9s-GW-121919	PS	12/19/2019 10:00	10503416002	Water	2				X	02
3	MW25-GW-121919	PS	12/19/2019 11:00	10503416004	Water	2				X	03
4	MW24-GW-121919	PS	12/19/2019 11:30	10503416005	Water	2				X	04
5	MW8s-GW-121919	PS	12/19/2019 12:00	10503416006	Water	2				X	05
6	MW1s-GW-121919	PS	12/19/2019 12:30	10503416007	Water	2				X	06
7	MW7s-GW-121919	PS	12/19/2019 13:00	10503416008	Water	2				X	07
8	MW6s-GW-121919	PS	12/19/2019 13:30	10503416009	Water	2				X	08
9	MW10s-GW-121919	PS	12/19/2019 15:00	10503416010	Water	2	2	3		X	09
10	MW12s-GW-121919	PS	12/19/2019 15:30	10503416011	Water	2	2	3		X	10
11	FD6-GW-121919	PS	12/19/2019 08:30	10503416012	Water	2	2	3		X	11
12	MW-11s-GW-121919	PS	12/19/2019 14:30	10503416014	Water	2				X	12

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12/23/19 1600			Methane, ethane, ethene
2					
3			<i>[Signature]</i>	12-24-19 9:15	NO TB 27 Total

Cooler Temperature on Receipt: 1.27 ± 0.2 °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory. 1320 7518 6314

1.5 ^u/₅

RAD SCREEN: <0.5 mR/hr

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client:	PACE TWA	L1174004
Cooler Received/Opened On:	12/24/19	Temperature: 1.5
Received By:	Michael Pappas	
Signature:	<i>[Handwritten Signature]</i>	

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			



Memorandum

January 27, 2020
Revision: March 5, 2020

To: David Hodson Ref. No.: 11183954-95-03-1497

From:  Jeffrey Cloud/eew/519-NF Tel: 206-914-3141

CC: Jonathan Espinoza, Brad Ostapkowicz, Steve Demus, Jesse Orth, Julie Lidstone

**Subject: Analytical Results and Reduced Validation of Reports 10501570, 10501571, 10501572, 10501573, 10501574, 10501811, 10501814, 10501816, 10501817, 10501818, 10501944, 10502148, 10502151, 10502418, 10502423m 10502424, 10502647, 10502648, 10502824, 10502955, 10503189 and 10503416
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) – Cenex Harvest Lease Site
Freeman, Washington
December 2019**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Quarterly Groundwater Sampling at the Cenex Harvest Lease Site in Freeman, Washington during December 2019. Samples were submitted to Pace Analytical Services, located in Minneapolis, Minnesota. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, laboratory duplicate data, recovery data from surrogate spikes, laboratory control samples, matrix spikes and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i.) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540 R 2016 002, September 2016
- ii.) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540 R 2016 001, September 2016

These items will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples for nitrate analysis. The associated sample results were qualified as estimated (see Table 4).

All sample containers were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blanks were qualified as non-detect due to contamination as evidenced by the blanks (see Table 5).

4. Surrogate Spike Recoveries

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) analysis were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.



For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with a few exceptions. Where high recoveries were found the associated sample results were non-detect and were not impacted. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias (see Table 6).

Inorganic Analyses

The LCS and LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS and LCS/LCSD recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision (where applicable).

6. Matrix Spike/Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike/matrix spike duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to assess analytical precision. MS/MSD analyses were performed as specified in Table 1. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed. If only the MS or MSD was outside of the control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision with the exception of a few high recoveries and RPDs. The associated sample results were non-detect and were not impacted.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with a few exceptions. Where high recoveries were found the associated non-detect results were not impacted and the associated sample detections were qualified as estimated due to the implied high bias. Where low recoveries were found the associated sample results were qualified as estimated due to the implied low bias. A summary of the qualification is presented in Table 7.



7. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as matrix spike (MS) samples. MS analyses were performed as specified in Table 1.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy with the exception of a few low sulfide recoveries. The associated sample results were qualified as estimated due to the implied low bias (see Table 7).

8. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision with the exception of one high total dissolved solids (TDS) RPD. The associated sample results were qualified as estimated due to variability (see Table 8).

9. Field QA/QC Samples

The field QA/QC consisted of thirteen trip blank samples and six field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, thirteen trip blanks were submitted to the laboratory for analysis. All results were non-detect for the analytes of interest with the exception of methylene chloride present at low concentrations. The associated sample results were non-detect and were not impacted. No qualification of the data was deemed necessary.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, six field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision with a few exceptions. The associated sample results and their duplicates were qualified as estimated due to variability (see Table 9).



10. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J) in Table 3. Non-detect results were presented as non-detect at the MDL in Table 3.

11. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
Asher-GW-120519	Asher Well	Water	12/05/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Atwood-GW-120619	Atwood House	Water	12/06/2019	08:45	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Lang-GW-120519	Lang Well	Water	12/05/2019	15:30	X	X	X	X	X	X	X				X	
Lashaw-GW-120519	Lashaw Well (Domestic)	Water	12/05/2019	14:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
Marlow-GW-121119	Marlow Well	Water	12/11/2019	12:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD2-GW-121119	Marlow Well	Water	12/11/2019	--	X	X	X	X	X	X	X	X	X	X	X	FD (Marlow-GW-121119)
Marlow2-GW-121119	Out-of-Use Marlow Well (No. 2)	Water	12/11/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD3-GW-121119	Out-of-Use Marlow Well (No. 2)	Water	12/11/2019	--	X	X	X	X	X	X	X	X	X	X	X	FD (Marlow2-GW-121119)
MW1D-GW-121319	MW-1D	Water	12/13/2019	09:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW1s-GW-121919	MW-1S	Water	12/19/2019	12:30		X	X	X	X	X	X	X	X	X	X	MS/MSD
MW2D-GW-121319	MW-2D	Water	12/13/2019	10:30	X	X	X	X	X	X	X	X	X	X	X	
MW3D-GW-121019	MW-3D	Water	12/10/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW4D-GW-121819	MW-4D	Water	12/18/2019	11:30	X	X	X	X	X	X	X	X	X	X	X	
MW5D-GW-121619	MW-5D	Water	12/16/2019	12:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6D-GW-121219	MW-6D	Water	12/12/2019	11:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW6s-GW-121919	MW-6S	Water	12/19/2019	13:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD6-GW-121919	MW-6S	Water	12/19/2019	--	X	X	X	X	X	X	X	X	X	X	X	FD (MW6s-GW-121919)
MW6U-GW-121219	MW-6U	Water	12/12/2019	10:15	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW7s-GW-121919	MW-7S	Water	12/19/2019	13:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW8s-GW-121919	MW-8S	Water	12/19/2019	12:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9D-GW-121319	MW-9D	Water	12/13/2019	12:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW9s-GW-121919	MW-9S	Water	12/19/2019	10:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
FD5-GW-121919	MW-9S	Water	12/19/2019	--	X	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD - FD (MW9s-GW-121919)
MW9U-GW-121319	MW-9U	Water	12/13/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW10s-GW-121919	MW-10S	Water	12/19/2019	15:00	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW-11s-GW-121919	MW-11S	Water	12/19/2019	14:30	X	X	X	X	X	X	X	X	X	X	X	
MW12s-GW-121919	MW-12S	Water	12/19/2019	15:30	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW13S-GW-121819	MW-13S	Water	12/18/2019	13:45	X	X	X	X	X	X	X	X	X	X	X	
MW14D-GW-121019	MW-14D	Water	12/10/2019	13:45	X	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW15D-GW-120919	MW-15D	Water	12/09/2019	11:45	X	X	X	X	X	X	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs	
MW16D-GW-121219	MW-16D	Water	12/12/2019	12:30	X	X	X	X	X	X	X	X	X	X	
MW17D-GW-121219	MW-17D	Water	12/12/2019	13:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW18D-GW-121219	MW-18D	Water	12/12/2019	12:00	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW19D-GW-121019	MW-19D	Water	12/10/2019	11:00	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW20D-GW-120919	MW-20D	Water	12/09/2019	13:30	X	X	X	X	X	X	X	X	X	X	
MW21D-GW-120919	MW-21D	Water	12/09/2019	11:00	X	X	X	X	X	X	X	X	X	X	
MW24-GW-121919	MW-24S	Water	12/19/2019	11:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW25-GW-121919	MW-25S	Water	12/19/2019	11:00	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW26-GW-121819	MW-26	Water	12/18/2019	09:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW27-GW-121019	MW-27	Water	12/10/2019	12:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW27-GW-121619	MW-27	Water	12/16/2019	09:45	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
MW28-GW-121019	MW-28	Water	12/10/2019	11:45	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
MW29-GW-121619	MW-29	Water	12/16/2019	11:00	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW30-GW-121619	MW-30	Water	12/16/2019	10:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW31-GW-121619	MW-31	Water	12/16/2019	13:30	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW32-GW-121619	MW-32	Water	12/16/2019	14:15	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW33-GW-121719	MW-33	Water	12/17/2019	11:45	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW34-GW-121719	MW-34	Water	12/17/2019	10:15	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW35-GW-121819	MW-35	Water	12/18/2019	10:15	X	X	X	X	X	X	X	X	X	X	MS/MSD
MW36-GW-121819	MW-36	Water	12/18/2019	10:45	X	X	X	X	X	X	X	X	X	X	
Randall-GW-120619	Randall Well	Water	12/06/2019	14:00	X	X	X	X	X	X	X	X	X	X	
Reed-GW-121319	Reed Well (W30)	Water	12/13/2019	10:45	X	X	X	X	X	X	X	X	X	X	
FD4-GW-121319	Reed Well (W30)	Water	12/13/2019	--	X	X	X	X	X	X	X	X	X	X	FD (Reed-GW-121319)
Silva-GW-121019	Silva Well	Water	12/10/2019	08:30	X	X	X	X	X	X	X	X	X	X	DUP - MS - MS/MSD
Stark-GW-120519	Stark Well (W15)	Water	12/05/2019	12:30	X	X	X	X	X	X	X	X	X	X	
FD1-GW-120519	Stark Well (W15)	Water	12/05/2019	--	X	X	X	X	X	X	X	X	X	X	MS/MSD - FD (Stark-GW-120519)
Thorson-GW-120619	Thorson Well	Water	12/06/2019	10:45	X	X	X	X	X	X	X	X	X	X	DUP - MS/MSD
W20-GW-121819	Out-of-Use Marlow Well (W20)	Water	12/18/2019	13:00	X	X	X	X	X	X	X	X	X	X	DUP
W26-GW-121719	Out-of-Use Freeman School Well (W26)	Water	12/17/2019	14:45	X	X	X	X	X	X	X	X	X	X	MS/MSD
WS5-GW-120619	WS-5	Water	12/06/2019	12:00			X				X			X	

Table 1

Sample Collection and Analysis Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments	
					Anions	COD	Dissolved Gases	Alkalinity	TDS	Sulfide	TOC	Metals	Mercury	VOCs		
WS5-GW-121019	WS-5	Water	12/10/2019	09:00	X	X		X	X	X		X	X			MS/MSD
TB1-120519	--	Water	12/05/2019	07:00											X	Trip Blank
TB2-120519	--	Water	12/05/2019	07:30											X	Trip Blank
TB3-120619	--	Water	12/06/2019	07:00											X	Trip Blank
TB4-120619	--	Water	12/06/2019	07:30											X	Trip Blank
TB5-120919	--	Water	12/09/2019	07:00											X	Trip Blank
TB6,7,8-121019	--	Water	12/10/2019	08:00											X	Trip Blank
TB-121119	--	Water	12/11/2019	07:00											X	Trip Blank
TB1-121219	--	Water	12/12/2019	07:00											X	Trip Blank
TB1-121319	--	Water	12/13/2019	07:00											X	Trip Blank
TB1-121619	--	Water	12/16/2019	07:00											X	Trip Blank
TB1-121719	--	Water	12/17/2019	07:00											X	Trip Blank
TB1-121819	--	Water	12/18/2019	07:00											X	Trip Blank
TB2-121919	--	Water	12/19/2019	07:30											X	Trip Blank

Notes:

DUP	- Laboratory Duplicate
FD	- Field Duplicate sample of sample in parenthesis
MS	- Matrix Spike
MS/MSD	- Matrix Spike/Matrix Spike Duplicate
VOCs	- Volatile Organic Compounds
COD	- Chemical Oxygen Demand
TDS	- Total Dissolved Solids
TOC	- Total Organic Carbon
"--"	- Not Applicable

Table 2
Analytical Methods
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260B ⁽¹⁾	Water
Dissolved Gases	RSK-175 ⁽²⁾	Water
Metals	SW-846 6010D ⁽¹⁾	Water
Mercury	SW-846 7470A ⁽¹⁾	Water
Alkalinity	SM 2320B ⁽³⁾	Water
Anions	EPA 300.0 ⁽⁴⁾ EPA 353.2 ⁽⁴⁾	Water Water
Total Organic Carbon (TOC)	SM 5310C ⁽³⁾	Water
Chemical Oxygen Demand (COD)	EPA 410.4 ⁽⁴⁾	Water
Total Dissolved Solids (TDS)	SM 2540C ⁽³⁾	Water
Sulfide	SM 4500 S2 D ⁽³⁾	Water

Notes:

- (1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
- (2) - EPA-RSK SOP 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
- (3) - SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
- (4) - EPA - MCAWW - "Methods for Chemical Analysis of Water and Waste," EPA-600/4-79-020, revised March 1983, with subsequent revisions

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Asher Well	Atwood House	Lang Well	Lashaw Well (Domestic)	Marlow Well	Marlow Well
	Sample Name:	Asher-GW-120519	Atwood-GW-120619	Lang-GW-120519	Lashaw-GW-120519	Marlow-GW-121119	FD2-GW-121119
	Sample Date:	12/05/2019	12/06/2019	12/05/2019	12/05/2019	12/11/2019	12/11/2019 Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Asher Well	Atwood House	Lang Well	Lashaw Well (Domestic)	Marlow Well	Marlow Well
Sample Name:	Asher-GW-120519	Atwood-GW-120619	Lang-GW-120519	Lashaw-GW-120519	Marlow-GW-121119	FD2-GW-121119
Sample Date:	12/05/2019	12/06/2019	12/05/2019	12/05/2019	12/11/2019	12/11/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	0.45 J	0.43 J
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	0.54	94.9
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	11.4
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	10.4
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Asher Well	Atwood House	Lang Well	Lashaw Well (Domestic)	Marlow Well	Marlow Well
	Sample Name:	Asher-GW-120519	Atwood-GW-120619	Lang-GW-120519	Lashaw-GW-120519	Marlow-GW-121119	FD2-GW-121119
	Sample Date:	12/05/2019	12/06/2019	12/05/2019	12/05/2019	12/11/2019	12/11/2019 Duplicate
Parameters	Unit						
Volatile Organic Compounds (Continued)							
tert-Amyl methyl ether	µg/L	<0.11	<0.11 J	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18 J	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases							
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91	<2.91
Metals							
Antimony (dissolved)	µg/L	<7.0	<7.0	--	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	--	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	65.2	44.3	--	8.9 J	31.2	32.5
Beryllium (dissolved)	µg/L	0.24 J	<0.12	--	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	--	0.30 J	<0.28	<0.28
Chromium (dissolved)	µg/L	0.85 J	<0.66	--	<0.66	0.95 J	<0.66
Cobalt (dissolved)	µg/L	<0.50	<0.50	--	<0.50	<0.50	<0.50
Copper (dissolved)	µg/L	43.7	10.9	--	2.6 J	59.6	67.9
Lead (dissolved)	µg/L	<2.0	<2.0	--	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Asher Well	Atwood House	Lang Well	Lashaw Well (Domestic)	Marlow Well	Marlow Well	
Sample Name:	Asher-GW-120519	Atwood-GW-120619	Lang-GW-120519	Lashaw-GW-120519	Marlow-GW-121119	FD2-GW-121119	
Sample Date:	12/05/2019	12/06/2019	12/05/2019	12/05/2019	12/11/2019	12/11/2019 Duplicate	
Parameters	Unit						
Metals (Continued)							
Mercury (dissolved)	µg/L	<0.093	<0.093	--	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	--	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	--	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	--	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	--	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	--	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	10.0 J	<0.43	--	11.3 J	8.8 J	8.9 J
Zinc (dissolved)	µg/L	25.5	43.8	--	107	92.3 J	169 J
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	212	147	199	143	162	163
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	6.1 J+	1.6 J+	2.2 J+	2.2 J+	22.9 J+	23.2 J+
Nitrate (as N)	mg/L	7.5	<0.012 J	0.50	3.2	4.7 J+	4.7 J+
Nitrite/Nitrate	mg/L	7.0	<0.018	0.48	3.1	4.1	4.1
Sulfate	mg/L	18.2 J+	4.6 J+	2.4 J+	7.4 J+	16.4	15.8
Sulfide	mg/L	<0.0062 J	<0.0062 J	<0.0062 J	<0.0062 J	<0.0062	<0.0062
Total dissolved solids (TDS)	mg/L	335	209	254	191	271	269
Total organic carbon (TOC)	mg/L	0.68 J	<0.39	<0.39	<0.39	0.63 J	0.56 J

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
	Sample Name:	Marlow2-GW-121119	FD3-GW-121119	MW1D-GW-121319	MW1s-GW-121919	MW2D-GW-121319
	Sample Date:	12/11/2019	12/11/2019 Duplicate	12/13/2019	12/19/2019	12/13/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,1,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
	Sample Name:	Marlow2-GW-121119	FD3-GW-121119	MW1D-GW-121319	MW1s-GW-121919	MW2D-GW-121319
	Sample Date:	12/11/2019	12/11/2019 Duplicate	12/13/2019	12/19/2019	12/13/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	9.7	10.4	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
Sample Name:	Marlow2-GW-121119	FD3-GW-121119	MW1D-GW-121319	MW1s-GW-121919	MW2D-GW-121319
Sample Date:	12/11/2019	12/11/2019 Duplicate	12/13/2019	12/19/2019	12/13/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	0.27 J	0.25 J	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	22.0
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	17.0	16.7	80.3	83.9
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	0.25 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	0.71 J	<0.66	<0.66	4.0 J
Cobalt (dissolved)	µg/L	<0.50	<0.50	<0.50	0.53 J
Copper (dissolved)	µg/L	103	98.7	1.3 J	5.9 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.3 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Out-of-Use Marlow Well (No. 2)	Out-of-Use Marlow Well (No. 2)	MW-1D	MW-1S	MW-2D
Sample Name:	Marlow2-GW-121119	FD3-GW-121119	MW1D-GW-121319	MW1s-GW-121919	MW2D-GW-121319
Sample Date:	12/11/2019	12/11/2019 Duplicate	12/13/2019	12/19/2019	12/13/2019
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	7.1 J	<3.8
Nickel (dissolved)	µg/L	1.8 J	1.9 J	<1.1	5.4 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	2.2 J	2.0 J	0.86 J	40.9
Zinc (dissolved)	µg/L	776	715	<6.3	17.1 J
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	272	273	193	429
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	18.3 J	21.4 J
Chloride	mg/L	1.6 J+	1.6 J+	2.4 J+	12.4 J+
Nitrate (as N)	mg/L	0.41 J+	0.41 J+	0.18 J+	0.37 J
Nitrite/Nitrate	mg/L	0.26	0.26	0.17	--
Sulfate	mg/L	2.1	2.1	5.1	47.9 J-
Sulfide	mg/L	<0.0062	<0.0062	<0.0062	<0.0062
Total dissolved solids (TDS)	mg/L	296	293	227	539
Total organic carbon (TOC)	mg/L	0.50 J	0.47 J	0.79 J	3.3

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S	MW-6S
Sample Name:	MW3D-GW-121019	MW4D-GW-121819	MW5D-GW-121619	MW6D-GW-121219	MW6s-GW-121919	FD6-GW-121919
Sample Date:	12/10/2019	12/18/2019	12/16/2019	12/12/2019	12/19/2019	12/19/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S	MW-6S
	Sample Name:	MW3D-GW-121019	MW4D-GW-121819	MW5D-GW-121619	MW6D-GW-121219	MW6s-GW-121919	FD6-GW-121919
	Sample Date:	12/10/2019	12/18/2019	12/16/2019	12/12/2019	12/19/2019	12/19/2019 Duplicate
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	7.9	<0.19	0.48 J	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	1.3 J	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S	MW-6S
Sample Name:	MW3D-GW-121019	MW4D-GW-121819	MW5D-GW-121619	MW6D-GW-121219	MW6s-GW-121919	FD6-GW-121919
Sample Date:	12/10/2019	12/18/2019	12/16/2019	12/12/2019	12/19/2019	12/19/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	15.0	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	41.8	74.7	93.1	9.1 J	40.5
Beryllium (dissolved)	µg/L	0.18 J	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	0.48 J	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	0.90 J	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	0.62 J	2.3 J	<0.50	<0.50	<0.50
Copper (dissolved)	µg/L	<1.2	1.5 J	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-3D	MW-4D	MW-5D	MW-6D	MW-6S	MW-6S	
Sample Name:	MW3D-GW-121019	MW4D-GW-121819	MW5D-GW-121619	MW6D-GW-121219	MW6s-GW-121919	FD6-GW-121919	
Sample Date:	12/10/2019	12/18/2019	12/16/2019	12/12/2019	12/19/2019	12/19/2019 Duplicate	
Parameters	Unit						
Metals (Continued)							
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	3.5 J	<1.1	1.2 J	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	1.7 J	8.6 J	8.2 J	5.8 J	3.9 J	3.9 J
Zinc (dissolved)	µg/L	<6.3	7.8 J	72.2	<6.3	<6.3	<6.3
General Chemistry							
Alkalinity, total (as CaCO ₃)	mg/L	141	164	218	172	146	147
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	21.8 J	19.0 J
Chloride	mg/L	1.8 J+	8.2 J+	1.4	2.6 J+	2.3 J+	2.3 J+
Nitrate (as N)	mg/L	0.18 J-	1.5 J	0.24 J	0.063 J	0.32 J+	0.32 J+
Nitrite/Nitrate	mg/L	0.15	1.3	0.18	0.034 J	0.23	0.23
Sulfate	mg/L	4.0 J+	9.4 J+	2.3	6.6	2.3 J+	2.3 J+
Sulfide	mg/L	<0.0062 J	0.016 J	<0.0062	<0.0062	<0.031	<0.031
Total dissolved solids (TDS)	mg/L	196 J	283	258	223	239	221
Total organic carbon (TOC)	mg/L	<0.39	2.4	0.42 J	<0.39	0.91 J	0.88 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
	Sample Name:	MW6U-GW-121219	MW7s-GW-121919	MW8s-GW-121919	MW9D-GW-121319	MW9s-GW-121919	MW9s-GW-121919
	Sample Date:	12/12/2019	12/19/2019	12/19/2019	12/13/2019	12/19/2019	12/19/2019
							Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
	Sample Name:	MW6U-GW-121219	MW7s-GW-121919	MW8s-GW-121919	MW9D-GW-121319	MW9s-GW-121919	FD5-GW-121919
	Sample Date:	12/12/2019	12/19/2019	12/19/2019	12/13/2019	12/19/2019	12/19/2019 Duplicate
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.21 J	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	80.9	1.1	167	114	442	368
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	4.6	<0.45	38.9	5.5	73.6	64.2
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-121219	MW7s-GW-121919	MW8s-GW-121919	MW9D-GW-121319	MW9s-GW-121919	MW9s-GW-121919
Sample Date:	12/12/2019	12/19/2019	12/19/2019	12/13/2019	12/19/2019	12/19/2019
Parameters	Unit					Duplicate
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	4.6 J	4.4 J	<3.8	4.8 J	<3.8
Barium (dissolved)	µg/L	60.1	51.3	36.6	29.8	85.3
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	0.91 J	<0.66	<0.66	<0.66	2.1 J
Cobalt (dissolved)	µg/L	<0.50	<0.50	<0.50	<0.50	1.7 J
Copper (dissolved)	µg/L	1.5 J	4.7 J	2.4 J	4.6 J	3.7 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	<2.3 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-6U	MW-7S	MW-8S	MW-9D	MW-9S	MW-9S
Sample Name:	MW6U-GW-121219	MW7s-GW-121919	MW8s-GW-121919	MW9D-GW-121319	MW9s-GW-121919	MW9s-GW-121919
Sample Date:	12/12/2019	12/19/2019	12/19/2019	12/13/2019	12/19/2019	12/19/2019
Parameters	Unit					Duplicate
Metals (Continued)						
Mercury (dissolved)	µg/L	0.33	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	3.1 J	2.2 J	<1.1	2.1 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	6.1 J	4.9 J	1.2 J	7.9 J	18.6
Zinc (dissolved)	µg/L	<6.3	63.4	19.7 J	<6.3	21.4
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	212	79.4	132	171	200 J
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	45.2 J
Chloride	mg/L	23.0 J+	15.6 J+	5.0 J+	15.0 J+	75.1 J+
Nitrate (as N)	mg/L	2.1 J+	8.6 J+	10.5 J+	4.0 J+	20.2 J+
Nitrite/Nitrate	mg/L	1.8	6.5	8.2	3.3	14.5
Sulfate	mg/L	8.8	20.1 J+	24.8 J+	37.3	93.6 J+
Sulfide	mg/L	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062 J
Total dissolved solids (TDS)	mg/L	312	204	267	303	468
Total organic carbon (TOC)	mg/L	2.4	2.8	1.6	1.1	1.7

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D
Sample Name:	MW9U-GW-121319	MW10s-GW-121919	MW-11s-GW-121919	MW12s-GW-121919	MW13S-GW-121819	MW14D-GW-121019
Sample Date:	12/13/2019	12/19/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D
Sample Name:	MW9U-GW-121319	MW10s-GW-121919	MW-11s-GW-121919	MW12s-GW-121919	MW13S-GW-121819	MW14D-GW-121019
Sample Date:	12/13/2019	12/19/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019

Parameters	Unit	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	153	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	3.6 J	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D
Sample Name:	MW9U-GW-121319	MW10s-GW-121919	MW-11s-GW-121919	MW12s-GW-121919	MW13S-GW-121819	MW14D-GW-121019
Sample Date:	12/13/2019	12/19/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	22.6	28.3	50.4	197	23.2
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	0.16 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	3.6 J	<0.66	<0.66	1.3 J	<0.66
Cobalt (dissolved)	µg/L	<0.50	<0.50	<0.50	0.52 J	0.59 J
Copper (dissolved)	µg/L	5.3 J	8.9 J	<1.2	1.3 J	<1.2
Lead (dissolved)	µg/L	4.1 J	<2.0	<2.0	2.0 J	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-9U	MW-10S	MW-11S	MW-12S	MW-13S	MW-14D
Sample Name:	MW9U-GW-121319	MW10s-GW-121919	MW-11s-GW-121919	MW12s-GW-121919	MW13S-GW-121819	MW14D-GW-121019
Sample Date:	12/13/2019	12/19/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	1.6 J	1.3 J	1.4 J	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	6.7 J	<5.5
Vanadium (dissolved)	µg/L	6.7 J	2.8 J	6.3 J	4.1 J	11.8 J
Zinc (dissolved)	µg/L	8.0 J	<6.3	<6.3	<6.3	7.4 J
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	97.1	318	210	231	167
Chemical oxygen demand (COD)	mg/L	31.5 J	<17.0	48.5 J	<17.0	<17.0
Chloride	mg/L	86.0 J+	1.0 J	1.8 J+	60.4 J+	1.6 J+
Nitrate (as N)	mg/L	4.3 J+	0.26 J+	0.11 J+	9.7 J+	0.58 J
Nitrite/Nitrate	mg/L	3.7	0.20	0.12	7.9	0.42
Sulfate	mg/L	12.4	2.4 J+	3.9 J+	53.6 J+	5.8 J+
Sulfide	mg/L	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062
Total dissolved solids (TDS)	mg/L	320	348	247	457	236
Total organic carbon (TOC)	mg/L	5.4	0.67 J	<0.39	2.5	0.42 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D
Sample Name:	MW15D-GW-120919	MW16D-GW-121219	MW17D-GW-121219	MW18D-GW-121219	MW19D-GW-121019	MW20D-GW-120919
Sample Date:	12/09/2019	12/12/2019	12/12/2019	12/12/2019	12/10/2019	12/09/2019

Parameters	Unit	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D
Sample Name:	MW15D-GW-120919	MW16D-GW-121219	MW17D-GW-121219	MW18D-GW-121219	MW19D-GW-121019	MW20D-GW-120919
Sample Date:	12/09/2019	12/12/2019	12/12/2019	12/12/2019	12/10/2019	12/09/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	0.77 J	<0.19
Carbon tetrachloride	µg/L	7.9	<0.19	<0.19	433	23.7
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	34.9	0.97 J
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D
Sample Name:	MW15D-GW-120919	MW16D-GW-121219	MW17D-GW-121219	MW18D-GW-121219	MW19D-GW-121019	MW20D-GW-120919
Sample Date:	12/09/2019	12/12/2019	12/12/2019	12/12/2019	12/10/2019	12/09/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11 J	<0.11	<0.11	<0.11	<0.11 J
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18 J
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	12.0	64.4	52.7	51.6	17.0
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	<0.12	0.23 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	0.93 J	1.1 J	<0.66	<0.66
Cobalt (dissolved)	µg/L	1.0 J	<0.50	<0.50	<0.50	1.0 J
Copper (dissolved)	µg/L	<1.2	<1.2	1.5 J	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	2.2 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-15D	MW-16D	MW-17D	MW-18D	MW-19D	MW-20D
Sample Name:	MW15D-GW-120919	MW16D-GW-121219	MW17D-GW-121219	MW18D-GW-121219	MW19D-GW-121019	MW20D-GW-120919
Sample Date:	12/09/2019	12/12/2019	12/12/2019	12/12/2019	12/10/2019	12/09/2019

Parameters	Unit						
Metals (Continued)							
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	8.9 J	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	1.7 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	0.54 J	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	11.1 J	9.6 J	4.1 J	<0.43	7.2 J	5.4 J
Zinc (dissolved)	µg/L	<6.3	<6.3	32.1	<6.3	<6.3	<6.3
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	179	159	158	155	176	270
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	4.0	10.4 J+	28.5 J+	2.7 J+	11.2 J+	7.8
Nitrate (as N)	mg/L	2.8	10 J	0.092 J	<0.012	5.4 J-	1.6
Nitrite/Nitrate	mg/L	2.2 J+	7.7	<0.018	<0.018	4.5 J+	1.2 J+
Sulfate	mg/L	8.5	31.9	53.3	8.2	43.6 J+	9.8
Sulfide	mg/L	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062 J	<0.0062
Total dissolved solids (TDS)	mg/L	227	366	296	188	302 J	295
Total organic carbon (TOC)	mg/L	0.49 J	0.96 J	3.2	0.41 J	0.78 J	0.88 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-21D	MW-24S	MW-25S	MW-26	MW-27	MW-27
Sample Name:	MW21D-GW-120919	MW24-GW-121919	MW25-GW-121919	MW26-GW-121819	MW27-GW-121019	MW27-GW-121619
Sample Date:	12/09/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019	12/16/2019

Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-21D	MW-24S	MW-25S	MW-26	MW-27	MW-27
Sample Name:	MW21D-GW-120919	MW24-GW-121919	MW25-GW-121919	MW26-GW-121819	MW27-GW-121019	MW27-GW-121619
Sample Date:	12/09/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019	12/16/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	58.6	225	<0.19	3.3
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	24.2	61.2	<0.45	2.6 J
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-21D	MW-24S	MW-25S	MW-26	MW-27	MW-27
Sample Name:	MW21D-GW-120919	MW24-GW-121919	MW25-GW-121919	MW26-GW-121819	MW27-GW-121019	MW27-GW-121619
Sample Date:	12/09/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019	12/16/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11 J	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18 J	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	68.5	217	60.2	27.1	45.6
Beryllium (dissolved)	µg/L	<0.12	<0.12	<0.12	0.14 J	1.1 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	22.8
Cobalt (dissolved)	µg/L	0.50 J	4.5 J	3.5 J	0.79 J	5.4 J
Copper (dissolved)	µg/L	<1.2	3.9 J	1.3 J	<1.2	9.6 J
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	2.5 J	20.8

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-21D	MW-24S	MW-25S	MW-26	MW-27	MW-27
Sample Name:	MW21D-GW-120919	MW24-GW-121919	MW25-GW-121919	MW26-GW-121819	MW27-GW-121019	MW27-GW-121619
Sample Date:	12/09/2019	12/19/2019	12/19/2019	12/18/2019	12/10/2019	12/16/2019

Parameters	Unit						
Metals (Continued)							
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	0.20 J	0.11 J
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	5.3 J	<3.8
Nickel (dissolved)	µg/L	<1.1	2.4 J	1.2 J	<1.1	16.4 J	1.9 J
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	6.0 J	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	<0.43	1.1 J	3.0 J	4.0 J	116	18.4
Zinc (dissolved)	µg/L	<6.3	<6.3	13.1 J	<6.3	51.5	<6.3
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	182	80.7	84.0	129	161	159
Chemical oxygen demand (COD)	mg/L	<17.0	77.4	22.5 J	<17.0	25.6 J	<17.0
Chloride	mg/L	3.3	477 J+	96.8 J+	1.9 J+	3.0 J+	2.6
Nitrate (as N)	mg/L	<0.012	7.1 J+	12.5 J+	0.21 J	0.27 J-	0.22 J
Nitrite/Nitrate	mg/L	<0.018	5.5	8.8	0.15	0.20	0.19
Sulfate	mg/L	9.3	77.5 J+	66.5 J+	2.9 J+	25.6 J+	20.0
Sulfide	mg/L	<0.0062	<0.16	<0.0062	<0.0062	<0.16 J	<0.031
Total dissolved solids (TDS)	mg/L	203	930	376	220	416 J	317
Total organic carbon (TOC)	mg/L	0.48 J	11.9	2.7	<0.39	0.97 J	0.84 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33
Sample Name:	MW28-GW-121019	MW29-GW-121619	MW30-GW-121619	MW31-GW-121619	MW32-GW-121619	MW33-GW-121719
Sample Date:	12/10/2019	12/16/2019	12/16/2019	12/16/2019	12/16/2019	12/17/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33
Sample Name:	MW28-GW-121019	MW29-GW-121619	MW30-GW-121619	MW31-GW-121619	MW32-GW-121619	MW33-GW-121719
Sample Date:	12/10/2019	12/16/2019	12/16/2019	12/16/2019	12/16/2019	12/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	0.69 J	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	429	412	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	27.9	87.2	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33
Sample Name:	MW28-GW-121019	MW29-GW-121619	MW30-GW-121619	MW31-GW-121619	MW32-GW-121619	MW33-GW-121719
Sample Date:	12/10/2019	12/16/2019	12/16/2019	12/16/2019	12/16/2019	12/17/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	4.2 J
Barium (dissolved)	µg/L	17.8	26.2	8.3 J	32.9	46.3
Beryllium (dissolved)	µg/L	<0.12	0.13 J	<0.12	<0.12	0.16 J
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	<0.28	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	0.98 J	0.79 J	0.63 J	0.61 J	2.6 J
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	<2.0	3.0 J

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33
Sample Name:	MW28-GW-121019	MW29-GW-121619	MW30-GW-121619	MW31-GW-121619	MW32-GW-121619	MW33-GW-121719
Sample Date:	12/10/2019	12/16/2019	12/16/2019	12/16/2019	12/16/2019	12/17/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	6.9 J	4.0 J
Nickel (dissolved)	µg/L	1.4 J	1.4 J	<1.1	1.2 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	9.0 J	5.1 J	3.6 J	3.6 J	0.48 J
Zinc (dissolved)	µg/L	<6.3	<6.3	<6.3	7.7 J	<6.3
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	176	216	218	129	171
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	9.7 J+	12.7	4.9	6.9	6.7
Nitrate (as N)	mg/L	5.8 J-	2.6 J	2.3 J	0.42 J	<0.012 J
Nitrite/Nitrate	mg/L	5.1	2.3	2.0	0.34	<0.018
Sulfate	mg/L	33.0 J+	42.5	2.5	21.9	14.6
Sulfide	mg/L	<0.0062 J	<0.0062	<0.0062	<0.031	<0.0062
Total dissolved solids (TDS)	mg/L	309 J	345	276	252	228
Total organic carbon (TOC)	mg/L	0.64 J	1.6	0.62 J	0.42 J	0.73 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID:	MW-34	MW-35	MW-36	Randall Well	Reed Well (W30)	Reed Well (W30)
	Sample Name:	MW34-GW-121719	MW35-GW-121819	MW36-GW-121819	Randall-GW-120619	Reed-GW-121319	FD4-GW-121319
	Sample Date:	12/17/2019	12/18/2019	12/18/2019	12/06/2019	12/13/2019	12/13/2019
							Duplicate
Parameters	Unit						
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID:	MW-34	MW-35	MW-36	Randall Well	Reed Well (W30)	Reed Well (W30)
	Sample Name:	MW34-GW-121719	MW35-GW-121819	MW36-GW-121819	Randall-GW-120619	Reed-GW-121319	FD4-GW-121319
	Sample Date:	12/17/2019	12/18/2019	12/18/2019	12/06/2019	12/13/2019	12/13/2019
							Duplicate
Parameters	Unit						
Volatile Organic Compounds (Continued)							
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	65.9	180	166	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	4.4	9.3	6.9	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-34	MW-35	MW-36	Randall Well	Reed Well (W30)	Reed Well (W30)
Sample Name:	MW34-GW-121719	MW35-GW-121819	MW36-GW-121819	Randall-GW-120619	Reed-GW-121319	FD4-GW-121319
Sample Date:	12/17/2019	12/18/2019	12/18/2019	12/06/2019	12/13/2019	12/13/2019 Duplicate
Parameters	Unit					
Volatile Organic Compounds (Continued)						
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11 J	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18 J	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases						
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	<2.91	<2.91	<2.91
Metals						
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	38.5	22.6	25.7	21.4	47.5
Beryllium (dissolved)	µg/L	0.23 J	0.14 J	<0.12	0.12 J	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	<0.28	0.31 J	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	5.6 J	0.82 J	0.62 J	<0.50	<0.50
Copper (dissolved)	µg/L	<1.2	<1.2	<1.2	9.9 J	3.2 J
Lead (dissolved)	µg/L	<2.0	<2.0	2.0 J	<2.0	<2.0

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	MW-34	MW-35	MW-36	Randall Well	Reed Well (W30)	Reed Well (W30)
Sample Name:	MW34-GW-121719	MW35-GW-121819	MW36-GW-121819	Randall-GW-120619	Reed-GW-121319	FD4-GW-121319
Sample Date:	12/17/2019	12/18/2019	12/18/2019	12/06/2019	12/13/2019	12/13/2019 Duplicate
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	37.2	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	6.1 J	1.1 J	<1.1	<1.1	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	3.2 J	14.4 J	9.2 J	5.0 J	24.4
Zinc (dissolved)	µg/L	8.8 J	8.5 J	32.2	80.5	28.3
General Chemistry						
Alkalinity, total (as CaCO ₃)	mg/L	248	152	169	187	139
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	9.2 J+	14.3 J+	22.7 J+	7.7 J+	1.7 J+
Nitrate (as N)	mg/L	0.044 J	3.2 J	5.4 J	2.6 J	0.37 J+
Nitrite/Nitrate	mg/L	<0.018	2.3	3.9	2.1 J+	0.36
Sulfate	mg/L	94.4 J+	12.9 J+	17.3 J+	10.9 J+	8.8
Sulfide	mg/L	<0.0062	<0.0062	<0.0062	<0.0062 J	<0.0062
Total dissolved solids (TDS)	mg/L	406	258	309	255	198
Total organic carbon (TOC)	mg/L	1.6	0.48 J	0.64 J	<0.39	<0.39

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
	Sample Name:	Silva-GW-121019	Stark-GW-120519	FD1-GW-120519	Thorson-GW-120619	W20-GW-121819
	Sample Date:	12/10/2019	12/05/2019	12/05/2019 Duplicate	12/06/2019	12/18/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
	Sample Name:	Silva-GW-121019	Stark-GW-120519	FD1-GW-120519	Thorson-GW-120619	W20-GW-121819
	Sample Date:	12/10/2019	12/05/2019	12/05/2019 Duplicate	12/06/2019	12/18/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
Sample Name:	Silva-GW-121019	Stark-GW-120519	FD1-GW-120519	Thorson-GW-120619	W20-GW-121819
Sample Date:	12/10/2019	12/05/2019	12/05/2019 Duplicate	12/06/2019	12/18/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11 J
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18 J
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrichloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	<4.07	<4.07	<4.07	<4.07
Ethene	µg/L	<4.26	<4.26	<4.26	<4.26
Methane	µg/L	<2.91	<2.91	17.8	3280
Metals					
Antimony (dissolved)	µg/L	<7.0	<7.0	<7.0	<7.0
Arsenic (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Barium (dissolved)	µg/L	30.1	31.6	32.7	52.2
Beryllium (dissolved)	µg/L	0.13 J	<0.12	0.27 J	<0.12
Cadmium (dissolved)	µg/L	<0.28	<0.28	0.52 J	<0.28
Chromium (dissolved)	µg/L	<0.66	<0.66	<0.66	<0.66
Cobalt (dissolved)	µg/L	0.73 J	<0.50	0.80 J	<0.50
Copper (dissolved)	µg/L	5.8 J	65.6	76.0	<1.2
Lead (dissolved)	µg/L	<2.0	<2.0	<2.0	2.4 J

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	Silva Well	Stark Well (W15)	Stark Well (W15)	Thorson Well	Out-of-Use Marlow Well (W20)
Sample Name:	Silva-GW-121019	Stark-GW-120519	FD1-GW-120519	Thorson-GW-120619	W20-GW-121819
Sample Date:	12/10/2019	12/05/2019	12/05/2019 Duplicate	12/06/2019	12/18/2019
Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	<0.093	<0.093	<0.093	<0.093
Molybdenum (dissolved)	µg/L	<3.8	<3.8	<3.8	<3.8
Nickel (dissolved)	µg/L	<1.1	<1.1	1.4 J	<1.1
Selenium (dissolved)	µg/L	<5.8	<5.8	<5.8	<5.8
Silver (dissolved)	µg/L	<0.40	<0.40	<0.40	<0.40
Thallium (dissolved)	µg/L	<5.5	<5.5	<5.5	<5.5
Vanadium (dissolved)	µg/L	9.5 J	6.0 J	6.2 J	<0.43
Zinc (dissolved)	µg/L	12.5 J	58.8	60.4	37.9
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	167	110	113	151
Chemical oxygen demand (COD)	mg/L	<17.0	<17.0	<17.0	<17.0
Chloride	mg/L	2.9 J+	1.7 J+	1.8 J+	1.6 J+
Nitrate (as N)	mg/L	3.0 J-	15.2	15.0 J	<0.012 J
Nitrite/Nitrate	mg/L	2.6	13.3	14.2	<0.018
Sulfate	mg/L	13.4 J+	12.5 J+	13.1 J+	1.2 J+
Sulfide	mg/L	<0.0062 J	<0.0062 J	<0.0062 J	0.036 J-
Total dissolved solids (TDS)	mg/L	329 J	264	259	197
Total organic carbon (TOC)	mg/L	0.58 J	<0.39	<0.39	<0.39

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID: Sample Name: Sample Date:	Out-of-Use Freeman School Well (W26) W26-GW-121719 12/17/2019	WS-5 WS5-GW-120619 12/06/2019	WS-5 WS5-GW-121019 12/10/2019	Trip Blank TB1-120519 12/05/2019	Trip Blank TB2-120519 12/05/2019
Parameters	Unit					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	--	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	--	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	--	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	--	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	--	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	--	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	--	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	--	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	--	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	--	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	--	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	--	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	--	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	--	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	--	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	--	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	--	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	--	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	--	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	--	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	--	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	--	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	--	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	--	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	--	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	--	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	--	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	--	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	--	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	--	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	--	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	--	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID:	Out-of-Use Freeman School Well (W26)	WS-5	WS-5	Trip Blank	Trip Blank
	Sample Name:	W26-GW-121719	WS5-GW-120619	WS5-GW-121019	TB1-120519	TB2-120519
	Sample Date:	12/17/2019	12/06/2019	12/10/2019	12/05/2019	12/05/2019
Parameters	Unit					
Volatile Organic Compounds (Continued)						
Acrylonitrile	µg/L	<0.91	<0.91	--	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	--	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	--	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	--	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	--	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	--	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	--	<0.19	<0.19
Carbon tetrachloride	µg/L	30.4	7.4	--	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	--	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	--	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	--	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	2.5 J	<0.45	--	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	--	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	--	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	--	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	--	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	--	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	--	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	--	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	--	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	--	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	--	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	--	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	--	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	--	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	--	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	--	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	--	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	--	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	--	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	--	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	--	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Out-of-Use Freeman School Well (W26)	WS-5	WS-5	Trip Blank	Trip Blank
Sample Name:	W26-GW-121719	WS5-GW-120619	WS5-GW-121019	TB1-120519	TB2-120519
Sample Date:	12/17/2019	12/06/2019	12/10/2019	12/05/2019	12/05/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11 J	--	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	--	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18 J	--	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	--	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	--	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	--	<2.2
Toluene	µg/L	<0.083	<0.083	--	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	--	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	--	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	--	<2.0
Trichloroethene	µg/L	<0.15	<0.15	--	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	--	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	--	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	--	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	--	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	--	<0.31
Dissolved Gases					
Ethane	µg/L	<4.07	<4.07	--	--
Ethene	µg/L	<4.26	<4.26	--	--
Methane	µg/L	<2.91	<2.91	--	--
Metals					
Antimony (dissolved)	µg/L	<7.0	--	<7.0	--
Arsenic (dissolved)	µg/L	<3.8	--	<3.8	--
Barium (dissolved)	µg/L	6.2 J	--	56.6	--
Beryllium (dissolved)	µg/L	<0.12	--	0.21 J	--
Cadmium (dissolved)	µg/L	<0.28	--	<0.28	--
Chromium (dissolved)	µg/L	<0.66	--	<0.66	--
Cobalt (dissolved)	µg/L	<0.50	--	2.3 J	--
Copper (dissolved)	µg/L	<1.2	--	10.8	--
Lead (dissolved)	µg/L	<2.0	--	2.8 J	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID: Sample Name: Sample Date:	Out-of-Use Freeman School Well (W26) W26-GW-121719 12/17/2019	WS-5 WS5-GW-120619 12/06/2019	WS-5 WS5-GW-121019 12/10/2019	Trip Blank TB1-120519 12/05/2019	Trip Blank TB2-120519 12/05/2019
Parameters	Unit					
Metals (Continued)						
Mercury (dissolved)	µg/L	<0.093	--	<0.093	--	--
Molybdenum (dissolved)	µg/L	<3.8	--	<3.8	--	--
Nickel (dissolved)	µg/L	<1.1	--	28.1	--	--
Selenium (dissolved)	µg/L	<5.8	--	<5.8	--	--
Silver (dissolved)	µg/L	<0.40	--	<0.40	--	--
Thallium (dissolved)	µg/L	<5.5	--	<5.5	--	--
Vanadium (dissolved)	µg/L	6.7 J	--	17.1	--	--
Zinc (dissolved)	µg/L	79.2	--	52.1	--	--
General Chemistry						
Alkalinity, total (as CaCO3)	mg/L	165	--	191	--	--
Chemical oxygen demand (COD)	mg/L	<17.0	--	<17.0	--	--
Chloride	mg/L	4.1 J+	--	6.6 J+	--	--
Nitrate (as N)	mg/L	3.0 J	--	1.6 J-	--	--
Nitrite/Nitrate	mg/L	2.1	--	1.3 J+	--	--
Sulfate	mg/L	6.7 J+	--	8.7 J+	--	--
Sulfide	mg/L	<0.0062	--	<0.0062 J	--	--
Total dissolved solids (TDS)	mg/L	275	--	254 J	--	--
Total organic carbon (TOC)	mg/L	0.66 J	0.42 J	--	--	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample Name:	TB3-120619	TB4-120619	TB5-120919	TB6,7,8-121019	TB-121119	TB1-121219	TB1-121319
Sample Date:	12/06/2019	12/06/2019	12/09/2019	12/10/2019	12/11/2019	12/12/2019	12/13/2019

Parameters	Unit							
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample Name:	TB3-120619	TB4-120619	TB5-120919	TB6,7,8-121019	TB-121119	TB1-121219	TB1-121319
Sample Date:	12/06/2019	12/06/2019	12/09/2019	12/10/2019	12/11/2019	12/12/2019	12/13/2019

Parameters	Unit							
Volatile Organic Compounds (Continued)								
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	1.3 J	1.2 J	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	Sample Name:	TB3-120619	TB4-120619	TB5-120919	TB6,7,8-121019	TB-121119	TB1-121219	TB1-121319
	Sample Date:	12/06/2019	12/06/2019	12/09/2019	12/10/2019	12/11/2019	12/12/2019	12/13/2019
Parameters	Unit							
Volatile Organic Compounds (Continued)								
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Dissolved Gases								
Ethane	µg/L	--	--	--	--	--	--	--
Ethene	µg/L	--	--	--	--	--	--	--
Methane	µg/L	--	--	--	--	--	--	--
Metals								
Antimony (dissolved)	µg/L	--	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--	--
Barium (dissolved)	µg/L	--	--	--	--	--	--	--
Beryllium (dissolved)	µg/L	--	--	--	--	--	--	--
Cadmium (dissolved)	µg/L	--	--	--	--	--	--	--
Chromium (dissolved)	µg/L	--	--	--	--	--	--	--
Cobalt (dissolved)	µg/L	--	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--	--
Lead (dissolved)	µg/L	--	--	--	--	--	--	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample Name:	TB3-120619	TB4-120619	TB5-120919	TB6,7,8-121019	TB-121119	TB1-121219	TB1-121319
Sample Date:	12/06/2019	12/06/2019	12/09/2019	12/10/2019	12/11/2019	12/12/2019	12/13/2019

Parameters	Unit						
Metals (Continued)							
Mercury (dissolved)	µg/L	--	--	--	--	--	--
Molybdenum (dissolved)	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Selenium (dissolved)	µg/L	--	--	--	--	--	--
Silver (dissolved)	µg/L	--	--	--	--	--	--
Thallium (dissolved)	µg/L	--	--	--	--	--	--
Vanadium (dissolved)	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L	--	--	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--
Nitrate (as N)	mg/L	--	--	--	--	--	--
Nitrite/Nitrate	mg/L	--	--	--	--	--	--
Sulfate	mg/L	--	--	--	--	--	--
Sulfide	mg/L	--	--	--	--	--	--
Total dissolved solids (TDS)	mg/L	--	--	--	--	--	--
Total organic carbon (TOC)	mg/L	--	--	--	--	--	--

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	Sample Name:	TB1-121619	TB1-121719	TB1-121819	TB2-121919
	Sample Date:	12/16/2019	12/17/2019	12/18/2019	12/19/2019
Parameters	Unit				
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	<0.14	<0.14	<0.14	<0.14
1,1,2,2-Tetrachloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1,2-Trichloroethane	µg/L	<0.18	<0.18	<0.18	<0.18
1,1-Dichloroethane	µg/L	<0.17	<0.17	<0.17	<0.17
1,1-Dichloroethene	µg/L	<0.16	<0.16	<0.16	<0.16
1,1-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichlorobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
1,2,3-Trichloropropane	µg/L	<0.26	<0.26	<0.26	<0.26
1,2,4-Trichlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane (Ethylene dibromide)	µg/L	<0.24	<0.24	<0.24	<0.24
1,2-Dichlorobenzene	µg/L	<0.14	<0.14	<0.14	<0.14
1,2-Dichloroethane	µg/L	<0.22	<0.22	<0.22	<0.22
1,2-Dichloroethene (total)	µg/L	<0.27	<0.27	<0.27	<0.27
1,2-Dichloropropane	µg/L	<0.16	<0.16	<0.16	<0.16
1,3,5-Trimethylbenzene	µg/L	<0.12	<0.12	<0.12	<0.12
1,3-Dichlorobenzene	µg/L	<0.16	<0.16	<0.16	<0.16
1,3-Dichloropropane	µg/L	<0.070	<0.070	<0.070	<0.070
1,4-Dichlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
1,4-Dioxane	µg/L	<54.6	<54.6	<54.6	<54.6
2,2,4-Trimethylpentane	µg/L	<0.19	<0.19	<0.19	<0.19
2,2-Dichloropropane	µg/L	<0.17	<0.17	<0.17	<0.17
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	<0.99	<0.99	<0.99	<0.99
2-Chlorotoluene	µg/L	<0.16	<0.16	<0.16	<0.16
2-Hexanone	µg/L	<0.88	<0.88	<0.88	<0.88
2-Phenylbutane (sec-Butylbenzene)	µg/L	<0.15	<0.15	<0.15	<0.15
4-Chlorotoluene	µg/L	<0.13	<0.13	<0.13	<0.13
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	<0.42	<0.42	<0.42	<0.42
Acetone	µg/L	<9.2	<9.2	<9.2	<9.2
Acrolein	µg/L	<3.2	<3.2	<3.2	<3.2

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

	Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	Sample Name:	TB1-121619	TB1-121719	TB1-121819	TB2-121919
	Sample Date:	12/16/2019	12/17/2019	12/18/2019	12/19/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
Acrylonitrile	µg/L	<0.91	<0.91	<0.91	<0.91
Benzene	µg/L	<0.10	<0.10	<0.10	<0.10
Bromobenzene	µg/L	<0.21	<0.21	<0.21	<0.21
Bromodichloromethane	µg/L	<0.22	<0.22	<0.22	<0.22
Bromoform	µg/L	<0.80	<0.80	<0.80	<0.80
Bromomethane (Methyl bromide)	µg/L	<1.8	<1.8	<1.8	<1.8
Carbon disulfide	µg/L	<0.19	<0.19	<0.19	<0.19
Carbon tetrachloride	µg/L	<0.19	<0.19	<0.19	<0.19
Chlorobenzene	µg/L	<0.17	<0.17	<0.17	<0.17
Chlorobromomethane	µg/L	<0.27	<0.27	<0.27	<0.27
Chloroethane	µg/L	<0.49	<0.49	<0.49	<0.49
Chloroform (Trichloromethane)	µg/L	<0.45	<0.45	<0.45	<0.45
Chloromethane (Methyl chloride)	µg/L	<0.48	<0.48	<0.48	<0.48
cis-1,2-Dichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
cis-1,3-Dichloropropene	µg/L	<0.20	<0.20	<0.20	<0.20
Cymene (p-Isopropyltoluene)	µg/L	<0.15	<0.15	<0.15	<0.15
Dibromochloromethane	µg/L	<0.12	<0.12	<0.12	<0.12
Dibromomethane	µg/L	<0.16	<0.16	<0.16	<0.16
Dichlorodifluoromethane (CFC-12)	µg/L	<0.23	<0.23	<0.23	<0.23
Dichlorofluoromethane	µg/L	<0.14	<0.14	<0.14	<0.14
Diisopropyl ether	µg/L	<0.13	<0.13	<0.13	<0.13
Ethylbenzene	µg/L	<0.14	<0.14	<0.14	<0.14
Hexachlorobutadiene	µg/L	<0.31	<0.31	<0.31	<0.31
Isopropyl benzene	µg/L	<0.18	<0.18	<0.18	<0.18
m&p-Xylenes	µg/L	<0.31	<0.31	<0.31	<0.31
Methyl tert butyl ether (MTBE)	µg/L	<0.16	<0.16	<0.16	<0.16
Methylene chloride	µg/L	<0.98	<0.98	<0.98	<0.98
N-Butylbenzene	µg/L	<0.24	<0.24	<0.24	<0.24
N-Propylbenzene	µg/L	<0.10	<0.10	<0.10	<0.10
Naphthalene	µg/L	<0.48	<0.48	<0.48	<0.48
o-Xylene	µg/L	<0.16	<0.16	<0.16	<0.16
Styrene	µg/L	<0.19	<0.19	<0.19	<0.19

Table 3

Analytical Results Summary
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

	Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	Sample Name:	TB1-121619	TB1-121719	TB1-121819	TB2-121919
	Sample Date:	12/16/2019	12/17/2019	12/18/2019	12/19/2019
Parameters	Unit				
Volatile Organic Compounds (Continued)					
tert-Amyl methyl ether	µg/L	<0.11	<0.11	<0.11	<0.11
tert-Butyl alcohol	µg/L	<1.2	<1.2	<1.2	<1.2
tert-Butyl ethyl ether	µg/L	<0.18	<0.18	<0.18	<0.18
tert-Butylbenzene	µg/L	<0.15	<0.15	<0.15	<0.15
Tetrachloroethene	µg/L	<0.17	<0.17	<0.17	<0.17
Tetrahydrofuran	µg/L	<2.2	<2.2	<2.2	<2.2
Toluene	µg/L	<0.083	<0.083	<0.083	<0.083
trans-1,2-Dichloroethene	µg/L	<0.12	<0.12	<0.12	<0.12
trans-1,3-Dichloropropene	µg/L	<0.18	<0.18	<0.18	<0.18
trans-1,4-Dichloro-2-butene	µg/L	<2.0	<2.0	<2.0	<2.0
Trichloroethene	µg/L	<0.15	<0.15	<0.15	<0.15
Trichlorofluoromethane (CFC-11)	µg/L	<0.23	<0.23	<0.23	<0.23
Trifluorotrchloroethane (CFC-113)	µg/L	<0.22	<0.22	<0.22	<0.22
Vinyl acetate	µg/L	<1.1	<1.1	<1.1	<1.1
Vinyl chloride	µg/L	<0.092	<0.092	<0.092	<0.092
Xylenes (total)	µg/L	<0.31	<0.31	<0.31	<0.31
Dissolved Gases					
Ethane	µg/L	--	--	--	--
Ethene	µg/L	--	--	--	--
Methane	µg/L	--	--	--	--
Metals					
Antimony (dissolved)	µg/L	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--
Barium (dissolved)	µg/L	--	--	--	--
Beryllium (dissolved)	µg/L	--	--	--	--
Cadmium (dissolved)	µg/L	--	--	--	--
Chromium (dissolved)	µg/L	--	--	--	--
Cobalt (dissolved)	µg/L	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--
Lead (dissolved)	µg/L	--	--	--	--

Table 3

**Analytical Results Summary
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Location ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample Name:	TB1-121619	TB1-121719	TB1-121819	TB2-121919
Sample Date:	12/16/2019	12/17/2019	12/18/2019	12/19/2019

Parameters	Unit				
Metals (Continued)					
Mercury (dissolved)	µg/L	--	--	--	--
Molybdenum (dissolved)	µg/L	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--
Selenium (dissolved)	µg/L	--	--	--	--
Silver (dissolved)	µg/L	--	--	--	--
Thallium (dissolved)	µg/L	--	--	--	--
Vanadium (dissolved)	µg/L	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	--	--	--	--
Chemical oxygen demand (COD)	mg/L	--	--	--	--
Chloride	mg/L	--	--	--	--
Nitrate (as N)	mg/L	--	--	--	--
Nitrite/Nitrate	mg/L	--	--	--	--
Sulfate	mg/L	--	--	--	--
Sulfide	mg/L	--	--	--	--
Total dissolved solids (TDS)	mg/L	--	--	--	--
Total organic carbon (TOC)	mg/L	--	--	--	--

Notes:

- < - Not detected at the associated reporting limit
- J - Estimated concentration
- J+ - Estimated concentration; implied high bias
- J- - Estimated concentration; implied low bias
- < () J - Not detected; associated reporting limit is estimated
- "--" - Not analyzed

Table 4

**Qualified Sample Results Due to Holding Time Exceedance
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Sample ID	Holding Time Criteria	Holding Time	Analyte	Qualified Sample Results	Units
General Chemistry	FD1-GW-120519	48 hours	>48 hours	Nitrate (as N)	15.0 J	mg/L
	Atwood-GW-120619	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	Thorson-GW-120619	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	Randall-GW-120619	48 hours	>48 hours	Nitrate (as N)	2.6 J	mg/L
	MW16D-GW-121219	48 hours	>96 hours	Nitrate (as N)	10 J	mg/L
	MW27-GW-121619	48 hours	>48 hours	Nitrate (as N)	0.22 J	mg/L
	MW30-GW-121619	48 hours	>48 hours	Nitrate (as N)	2.3 J	mg/L
	MW29-GW-121619	48 hours	>48 hours	Nitrate (as N)	2.6 J	mg/L
	MW5D-GW-121619	48 hours	>48 hours	Nitrate (as N)	0.24 J	mg/L
	MW31-GW-121619	48 hours	>48 hours	Nitrate (as N)	0.42 J	mg/L
	MW32-GW-121619	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	MW34-GW-121719	48 hours	>48 hours	Nitrate (as N)	0.044 J	mg/L
	MW33-GW-121719	48 hours	>48 hours	Nitrate (as N)	0.22 J	mg/L
	W26-GW-121719	48 hours	>96 hours	Nitrate (as N)	3.0 J	mg/L
	MW26-GW-121819	48 hours	>48 hours	Nitrate (as N)	0.21 J	mg/L
	MW35-GW-121819	48 hours	>48 hours	Nitrate (as N)	3.2 J	mg/L
	MW36-GW-121819	48 hours	>48 hours	Nitrate (as N)	5.4 J	mg/L
	MW4D-GW-121819	48 hours	>48 hours	Nitrate (as N)	1.5 J	mg/L
	W20-GW-121819	48 hours	>48 hours	Nitrate (as N)	<0.012 J	mg/L
	MW13S-GW-121819	48 hours	>48 hours	Nitrate (as N)	0.58 J	mg/L
MW1s-GW-121919	48 hours	>96 hours	Nitrate (as N)	0.37 J	mg/L	

Notes:

- J - Estimated concentration
<() J - Not detected; associated reporting limit is estimated

Table 5

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Lead (dissolved)	12/29/2019	2.3 J	MW9s-GW-121919	2.2 J	<2.3 J	µg/L
				MW1s-GW-121919	2.3 J	<2.3 J	µg/L
General Chemistry	Sulfate	12/20/2019	0.48 J	W20-GW-121819	0.52 J	<0.52 J	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- J - Estimated concentration
- <() J - Not detected; associated reporting limit is estimated

Table 6

Qualified Sample Results Due to Outlying Laboratory Control Sample Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS	<u>Control Limits</u>	Associated Sample ID	Qualified Results	Units
			% Recovery	% Recovery			
VOCs	tert-Butyl ethyl ether	12/11/2019	73	75-125	Atwood-GW-120619	<0.18 J	µg/L
					Randall-GW-120619	<0.18 J	µg/L
					WS5-GW-120619	<0.18 J	µg/L
					Thorson-GW-120619	<0.18 J	µg/L
					Atwood-GW-120619	<0.18 J	µg/L
					MW21D-GW-120919	<0.18 J	µg/L
					MW20D-GW-120919	<0.18 J	µg/L
	MW15D-GW-120919	<0.18 J	µg/L				
	tert-Amyl methyl ether	12/11/2019	67	75-125	Atwood-GW-120619	<0.11 J	µg/L
					Randall-GW-120619	<0.11 J	µg/L
					WS5-GW-120619	<0.11 J	µg/L
					Thorson-GW-120619	<0.11 J	µg/L
					Atwood-GW-120619	<0.11 J	µg/L
					MW21D-GW-120919	<0.11 J	µg/L
MW20D-GW-120919					<0.11 J	µg/L	
MW15D-GW-120919	<0.11 J	µg/L					

Notes:

LCS - Laboratory Control Sample

<() J - Not detected; associated reporting limit is estimated

VOCs - Volatile Organic Compounds

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified Result	Units	
			% Recovery	% Recovery		% Recovery	RPD				
General Chemistry	Lashaw-GW-120519	Chloride	123	123	0	90-110	20	Stark-GW-120519	1.7 J+	mg/L	
								Asher-GW-120519	6.1 J+	mg/L	
								FD1-GW-120519	1.8 J+	mg/L	
								Lashaw-GW-120519	2.2 J+	mg/L	
								Lang-GW-120519	2.2 J+	mg/L	
	Atwood-GW-120619	Sulfate	125	124	0	90-110	20	Stark-GW-120519	12.5 J+	mg/L	
								Asher-GW-120519	18.2 J+	mg/L	
								FD1-GW-120519	13.1 J+	mg/L	
								Lashaw-GW-120519	7.4 J+	mg/L	
								Lang-GW-120519	2.4 J+	mg/L	
Silva-GW-121019 WS5-GW-121019	Chloride	124	125	1	90-110	20	Atwood-GW-120619	1.6 J+	mg/L		
							Thorson-GW-120619	1.6 J+	mg/L		
							Randall-GW-120619	7.7 J+	mg/L		
		WS5-GW-121019	Sulfate	127	125	1	90-110	20	Atwood-GW-120619	4.6 J+	mg/L
									Thorson-GW-120619	1.2 J+	mg/L
									Randall-GW-120619	10.9 J+	mg/L

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified	Units
			% Recovery	% Recovery		% Recovery	RPD		Result	
General Chemistry	Silva-GW-121019 WS5-GW-121019	Chloride	119	119	0	90-110	20	MW19D-GW-121019	11.2 J+	mg/L
			115	116	1	90-110	20	MW28-GW-121019	9.7 J+	mg/L
								MW27-GW-121019	3.0 J+	mg/L
								MW14D-GW-121019	1.2 J+	mg/L
								MW3D-GW-121019	1.8 J+	mg/L
		Nitrate (as N)	77	77	0	90-110	20	Silva-GW-121019	3.0 J-	mg/L
	WS5-GW-121019							1.6 J-	mg/L	
	MW19D-GW-121019							5.4 J-	mg/L	
	MW28-GW-121019							5.8 J-	mg/L	
	MW27-GW-121019							0.27 J-	mg/L	
	MW14D-GW-121019							0.097 J	mg/L	
	MW3D-GW-121019							0.18 J-	mg/L	
		Sulfate	115	116	1	90-110	20	Silva-GW-121019	13.4 J+	mg/L
	WS5-GW-121019							8.7 J+	mg/L	
	MW19D-GW-121019							43.6 J+	mg/L	
	MW28-GW-121019							33.0 J+	mg/L	
	MW27-GW-121019							25.6 J+	mg/L	
	MW14D-GW-121019							1.5 J+	mg/L	
MW3D-GW-121019	4.0 J+	mg/L								

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified	Units
			% Recovery	% Recovery		% Recovery	RPD		Result	
General Chemistry	MW6D-GW-121219	Chloride	119	121	1	90-110	20	MW6U-GW-121219	23.0 J+	mg/L
								MW6D-GW-121219	2.6 J+	mg/L
								MW18D-GW-121219	2.7 J+	mg/L
								MW16D-GW-121219	10.4 J+	mg/L
								MW17D-GW-121219	28.5 J+	mg/L
								Marlow-GW-121119	22.9 J+	mg/L
								Marlow2-GW-121119	1.6 J+	mg/L
								FD2-GW-121119	23.2 J+	mg/L
								FD3-GW-121119	1.6 J+	mg/L
								MW1D-GW-121319	2.4 J+	mg/L
								MW2D-GW-121319	2.0 J+	mg/L
								Reed-GW-121319	1.7 J+	mg/L
								FD4-GW-121319	1.7 J+	mg/L
								MW9U-GW-121319	86.0 J+	mg/L
MW9D-GW-121319	15.0 J+	mg/L								
		Nitrate (as N)	116	118	1	90-110	20	MW6U-GW-121219	2.1 J+	mg/L
								MW6D-GW-121219	0.063 J	mg/L
								MW16D-GW-121219	10 J	mg/L
								MW17D-GW-121219	0.092 J	mg/L
								Marlow-GW-121119	4.7 J+	mg/L
								Marlow2-GW-121119	0.41 J+	mg/L
								FD2-GW-121119	4.7 J+	mg/L

Table 7

Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified	Units	
			% Recovery	% Recovery		% Recovery	RPD		Result		
General Chemistry	MW6D-GW-121219	Nitrate (as N)	116	118	1	90-110	20	FD3-GW-121119	0.41 J+	mg/L	
								MW1D-GW-121319	0.18 J+	mg/L	
									MW2D-GW-121319	0.059 J	mg/L
									Reed-GW-121319	0.37 J+	mg/L
									FD4-GW-121319	0.37 J+	mg/L
									MW9U-GW-121319	4.3 J+	mg/L
									MW9D-GW-121319	4.0 J+	mg/L
		MW34-GW-121719	Chloride	132	134	1	90-110	20	MW34-GW-121719	9.2 J+	mg/L
		MW33-GW-121719		131	120	3	90-110	20	MW33-GW-121719	24.5 J+	mg/L
								W26-GW-121719	4.1 J+	mg/L	
			Nitrate (as N)	130	131	1	90-110	20	MW34-GW-121719	0.044 J	mg/L
				140	133	5	90-110	20	MW33-GW-121719	0.22 J	mg/L
								W26-GW-121719	3.0 J	mg/L	
			Sulfate	136	126	5	90-110	20	MW34-GW-121719	94.4 J+	mg/L
									MW33-GW-121719	9.4 J+	mg/L
								W26-GW-121719	6.7 J+	mg/L	
	MW26-GW-121819	Chloride	139	136	2	90-110	20	MW26-GW-121819	1.9 J+	mg/L	
								MW35-GW-121819	14.3 J+	mg/L	
								MW36-GW-121819	22.7 J+	mg/L	

Table 7

Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Sample ID	Analyte	MS	MSD	RPD	Control Limits		Associated Sample IDs	Qualified	Units	
			% Recovery	% Recovery		% Recovery	RPD		Result		
General Chemistry	MW26-GW-121819	Chloride	139	136	2	90-110	20	MW4D-GW-121819	8.2 J+	mg/L	
								W20-GW-121819	2.7 J+	mg/L	
									MW13S-GW-121819	1.6 J+	mg/L
			Nitrate (as N)	133	128	3	90-110	20	MW26-GW-121819	0.21 J	mg/L
									MW35-GW-121819	3.2 J	mg/L
									MW36-GW-121819	5.4 J	mg/L
		Sulfate	136	131	3	90-110	20	MW4D-GW-121819	1.5 J	mg/L	
								MW13S-GW-121819	0.58 J	mg/L	
								MW26-GW-121819	2.9 J+	mg/L	
								MW35-GW-121819	12.9 J+	mg/L	
								MW36-GW-121819	17.3 J+	mg/L	
								MW4D-GW-121819	9.4 J+	mg/L	
							MW13S-GW-121819	5.8 J+	mg/L		
	FD5-GW-121919	Chloride	131	132	0	90-110	20	FD5-GW-121919	78.7 J+	mg/L	
	MW9s-GW-121919		133	132	1	90-110	20	MW9s-GW-121919	75.1 J+	mg/L	
								MW25-GW-121919	96.8 J+	mg/L	
								MW24-GW-121919	477 J+	mg/L	
								MW8s-GW-121919	5.0 J+	mg/L	
								MW7s-GW-121919	15.6 J+	mg/L	
							MW6s-GW-121919	2.3 J+	mg/L		

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified	Units
			% Recovery	% Recovery		% Recovery	RPD		Result	
General Chemistry	FD5-GW-121919	Chloride	131	132	0	90-110	20	MW10s-GW-121919	1.0 J	mg/L
	MW9s-GW-121919		133	132	1	90-110	20	MW12s-GW-121919 FD6-GW-121919 MW-11s-GW-121919	60.4 J+ 2.3 J+ 1.8 J+	mg/L mg/L mg/L
		Nitrate (as N)	116	116	0	90-110	20	FD5-GW-121919	20.0 J+	mg/L
			117	115	0	90-110	20	MW9s-GW-121919 MW25-GW-121919 MW24-GW-121919 MW8s-GW-121919 MW7s-GW-121919 MW6s-GW-121919 MW10s-GW-121919 MW12s-GW-121919 FD6-GW-121919 MW-11s-GW-121919	20.2 J+ 12.5 J+ 7.1 J+ 10.5 J+ 8.6 J+ 0.32 J+ 0.26 J+ 9.7 J+ 0.32 J+ 0.11 J+	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L
		Sulfate	132	131	0	90-110	20	FD5-GW-121919	92.6 J+	mg/L
			130	129	0	90-110	20	MW9s-GW-121919	93.6 J+	mg/L
								MW25-GW-121919	66.5 J+	mg/L
								MW24-GW-121919	77.5 J+	mg/L
								MW8s-GW-121919	24.8 J+	mg/L
		MW7s-GW-121919	20.1 J+	mg/L						

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified	Units	
			% Recovery	% Recovery		% Recovery	RPD		Result		
General Chemistry	FD5-GW-121919	Sulfate	132	131	0	90-110	20	MW6s-GW-121919	2.3 J+	mg/L	
	MW9s-GW-121919		130	129	0	90-110	20	MW10s-GW-121919	2.4 J+	mg/L	
								MW12s-GW-121919	53.6 J+	mg/L	
								FD6-GW-121919	2.3 J+	mg/L	
								MW-11s-GW-121919	3.9 J+	mg/L	
		MW1s-GW-121919	Chloride	119	116	1	90-110	20	MW1s-GW-121919	12.4 J+	mg/L
			Nitrate (as N)	130	128	1	90-110	20	MW1s-GW-121919	0.37 J	mg/L
			Sulfate	87	80	1	90-110	20	MW1s-GW-121919	47.9 J-	mg/L
		WS5-GW-121019	Nitrite/Nitrate	114	115	0	90-110	20	Randall-GW-120619	2.1 J+	mg/L
									MW20D-GW-120919	1.2 J+	mg/L
									MW15D-GW-120919	2.2 J+	mg/L
									WS5-GW-121019	1.3 J+	mg/L
									MW19D-GW-121019	4.5 J+	mg/L
		Asher-GW-120519	Sulfide	68	--	--	75-125	--	Stark-GW-120519	<0.0062 J	mg/L
									Asher-GW-120519	<0.0062 J	mg/L
								FD1-GW-120519	<0.0062 J	mg/L	
								Lashaw-GW-120519	<0.0062 J	mg/L	
								Lang-GW-120519	<0.0062 J	mg/L	

Table 7

**Qualified Sample Results Due to Outlying MS/MSD Results
 Quarterly Groundwater Sampling
 Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
 Freeman, Washington
 December 2019**

Parameter	Sample ID	Analyte	MS	MSD	RPD (percent)	Control Limits		Associated Sample IDs	Qualified	Units
			% Recovery	% Recovery		% Recovery	RPD		Result	
General Chemistry	Atwood-GW-120619	Sulfide	68	--	--	75-125	--	Atwood-GW-120619	<0.0062 J	mg/L
								Thorson-GW-120619	0.036 J-	mg/L
Randall-GW-120619								<0.0062 J	mg/L	
	Silva-GW-121019	Sulfide	64	--	--	75-125	--	Silva-GW-121019	<0.0062 J	mg/L
WS5-GW-121019								<0.0062 J	mg/L	
MW19D-GW-121019								<0.0062 J	mg/L	
MW28-GW-121019								<0.0062 J	mg/L	
MW27-GW-121019								<0.16 J	mg/L	
MW14D-GW-121019								<0.0062 J	mg/L	
	MW3D-GW-121019	<0.0062 J	mg/L							

Notes:

- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- RPD - Relative Percent Difference
- J - Estimated concentration
- J+ - Estimated concentration; implied high bias
- J- - Estimated concentration; implied low bias
- <() J - Not detected; associated reporting limit is estimated

Table 8

Qualified Sample Data Due to Outlying Laboratory Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019

Parameter	Sample ID	Analyte	RPD		Associated Sample IDs	Qualified Result	Units
			RPD (percent)	Control Limit (percent)			
General Chemistry	Silva-GW-121019	Total dissolved solids (TDS)	28	5	Silva-GW-121019	329 J	mg/L
					WS5-GW-121019	254 J	mg/L
					MW19D-GW-121019	302 J	mg/L
					MW28-GW-121019	309 J	mg/L
					MW27-GW-121019	416 J	mg/L
					MW14D-GW-121019	203 J	mg/L
					MW3D-GW-121019	196 J	mg/L

Notes:

- RPD - Relative Percent Difference
J - Estimated concentration

Table 9

**Qualified Sample Data Due to Variability in Field Duplicate Results
Quarterly Groundwater Sampling
Union Pacific Railroad (UPRR) - Cenex Harvest Lease Site
Freeman, Washington
December 2019**

Parameter	Analyte	RPD	Diff	RL	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
Metals	Zinc (dissolved)	--	76.7	20	Marlow-GW-121119	92.3 J	FD2-GW-121119	169 J	ug/L
General Chemistry	Alkalinity, total (as CaCO ₃)	81.8	--	--	MW9s-GW-121919	200 J	FD5-GW-121919	83.9 J	mg/L
	Sulfide	--	0.05	0.02	MW9s-GW-121919	<0.0062 J	FD5-GW-121919	0.070 J	mg/L

Notes:

- RPD - Relative Percent Difference (i.e., >50% for waters/air or >100% for soils)
Diff - Difference (i.e., >1X RL for waters/air or >2XRL for soils)
RL - Reporting limit
"--" - Not Applicable
J - Estimated concentration
<() J - Not detected; associated reporting limit is estimated