Tena Seeds, PE
Senior Engineer, Uplands Unit
Northwest Region Toxics Cleanup Program
Washington State Department of Ecology
PO Box 330316
Shoreline, WA 98133-9716

Arcadis U.S., Inc.
1420 5th Avenue
Suite 2400
Seattle
Washington 98101
Phone: 206 325 5254
Fax: 206 325 8218
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Date: July 11, 2024
Subject: Progress Report – Second Quarter 2024
Agreed Order No. DE 18042
Facility Site Identification No. 75486194
Cleanup Site Identification No. 14604
Time Oil Bulk Terminal – BNSF Property
Seattle, WA

Dear Ms. Seeds,

On behalf of BNSF Railway Company (BNSF), Arcadis U.S., Inc. (Arcadis) is providing this quarterly progress report for the Time Oil Bulk Terminal – BNSF Property (Site) in accordance with Section VII Subsection D of Agreed Order No. DE 18042 between the Washington Department of Ecology (Ecology) and BNSF. This progress report documents activities completed between April 1 and June 30, 2024 (Second Quarter 2024 [Reporting Period]).

Activities and Deliverables from Prior Reporting Period

- Participated in a discussion with Ecology regarding the preliminary groundwater data in the context of the Time Oil Bulk Terminal site as a whole on March 27, 2024.
- Collected remedial investigation data in accordance with the Remedial Investigation Work Plan (RIWP; Arcadis 2023) on May 15 through May 17, 2024. Investigatory work included gauging of groundwater levels and collection of groundwater chemical/geochemical samples on the BNSF Property.
- Arcadis met with Floyd Snider on May 15, 2024 to gauge one well within the right of way to confirm gauging depths are calibrated between the BNSF Property and the adjacent Time Oil Bulk Terminal sites.
- Removed remedial investigation-derived waste removed the Site on May 22, 2024.

Deviations from Required Tasks

- None during the Reporting Period.

Deviations from Scope of Work and Schedule

- None during the Reporting Period.

Ms. Tena Seeds
Washington State Department of Ecology
July 11, 2024

Laboratory and Field Data Received

- Groundwater gauging and elevation data collected in accordance with the RIWP are included as Attachment 1.
- Laboratory analytical data collected in accordance with the RIWP are included as Attachment 2. Analytical data will be uploaded to Ecology's Environmental Information Management System post-data validation.

Planned Activities and Deliverables for the Upcoming Reporting Period

- Arcadis will conduct the fourth groundwater monitoring event included as part of the remedial investigation starting on August 26, 2024.

Please contact me with any questions or comments regarding this quarterly progress report.

Sincerely,
Arcadis U.S., Inc.

Kyle Haslam
Project Manager

Email: kyle.haslam@arcadis.com
Direct Line: 206-719-6991
Mobile: 206-726-4753

CC. Scott MacDonald, BNSF
Shane DeGross, BNSF
Matt Annis, Arcadis
Emily Zikmund, Arcadis

References:

Arcadis 2023. Remedial Investigation Work Plan, Time Oil Bulk Terminal – BNSF Property, Seattle, WA. Prepared for BNSF Railway Company. June 26.

Attachments: Attachment 1 – Groundwater Elevation and LNAPL Measurements
Attachment 2 – Laboratory Analytical Reports

Attachment 1
Groundwater Elevation and LNAPL Measurements
Progress Report - Second Quarter 2024
Time Oil Bulk Terminal – BNSF Property
Seattle, Washington

Well Designation	Water Bearing Zone	TOC Elevation (feet NAVD88)	Total Depth (feet btoc)	Second Quarter Groundwater Sampling - May 2024				
				Date	Depth to Water (feet btoc)	Depth to LNAPL (feet btoc)	Apparent LNAPL Thickness (feet)	Groundwater Elevation (feet NAVD88)
01MW92	Perched	58.51	16.5	5/15/2024	14.04	--	--	44.47
01MW93	Shallow	58.99	38.7	5/15/2024	28.31	--	--	30.68
01MW94	Shallow	58.57	39.5	5/15/2024	29.54	--	--	29.03
01MW95	Shallow	59.32	36.3	5/15/2024	27.90	--	--	31.42
01MW96	Perched	59.59	15.0	5/15/2024	13.61	--	--	45.98
01MW97	Perched	58.83	14.6	5/15/2024	10.06	--	--	48.77
01MW98	Perched	57.78	14.4	5/15/2024	9.84	--	--	47.94
MW-BN-01	Perched	58.01	14.9	5/15/2024	12.81	--	--	45.20
MW-BN-02	Perched	58.60	14.9	5/15/2024	9.79	--	--	48.81
MW-BN-03	Shallow	59.45	37.7	5/15/2024	28.71	--	--	30.74
MW-BN-04	Perched	59.55	14.9	5/15/2024	13.77	--	--	45.78
MW-BN-05	Perched	59.56	14.9	5/15/2024	12.72	--	--	46.84

Acronyms and Abbreviations:
-- = Not Applicable
btoc = below top of casing
LNAPL = light nonaqueous phase liquid
NAVD88 = North American Vertical Datum of 1988

ANALYTICAL REPORT

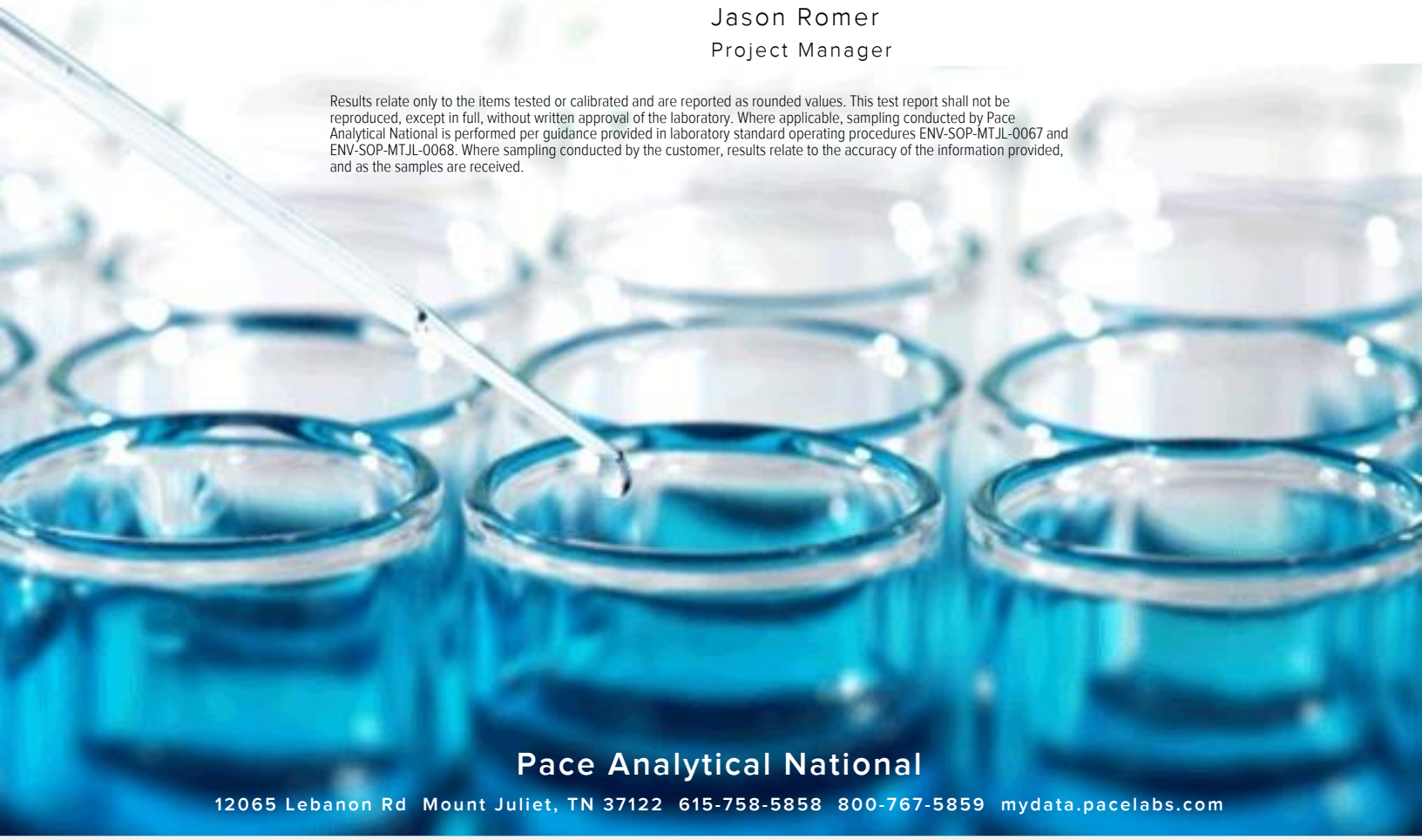
June 13, 2024

ARCADIS - BNSF Region 2

Sample Delivery Group:	L1737798
Samples Received:	05/17/2024
Project Number:	30195976
Description:	BNSF Time Oil Bulk Terminal - Seattle, WA
Site:	BNSF TIME OIL
Report To:	Kyle Haslam 1420 5th Avenue, Suite 2400 Seattle, WA 98101

Entire Report Reviewed By:

Jason Romer
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

01MW96_051624 L1737798-01 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 13:15 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294769	1	05/31/24 21:40	05/31/24 21:40	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293654	1	05/26/24 17:56	05/26/24 17:56	ASH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292826	1	05/25/24 00:59	05/25/24 00:59	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 13:31	05/23/24 13:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 01:51	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 12:36	KAP	Mt. Juliet, TN

01MW94_051524 L1737798-02 GW

Collected by: Carlin Wong | Collected date/time: 05/15/24 14:15 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294769	1	05/31/24 22:28	05/31/24 22:28	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293654	1	05/26/24 18:13	05/26/24 18:13	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289375	1	05/21/24 09:57	05/21/24 12:54	JTM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289381	1	05/21/24 12:13	05/21/24 16:51	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2290300	1	05/21/24 13:57	05/21/24 13:57	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 13:50	05/23/24 13:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 02:11	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/27/24 15:19	MAA	Mt. Juliet, TN

MW-BN-05_051624 L1737798-03 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 12:15 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9060A	WG2293654	1	05/26/24 18:48	05/26/24 18:48	ASH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2290300	1	05/21/24 14:20	05/21/24 14:20	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 14:09	05/23/24 14:09	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 02:31	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/27/24 16:02	MAA	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2291268	1.04	05/22/24 21:03	05/23/24 13:39	DSH	Mt. Juliet, TN

EB_051624 L1737798-04 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 10:00 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2290300	1	05/21/24 13:34	05/21/24 13:34	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 13:11	05/23/24 13:11	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 02:51	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2291268	1	05/22/24 21:03	05/23/24 14:01	DSH	Mt. Juliet, TN

TRIP BLANK L1737798-05 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 00:00 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 12:33	05/23/24 12:33	JHH	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer
Project Manager

Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1737798-01	01MW96_051624	NWTPHDX-NO SGT
L1737798-02	01MW94_051524	NWTPHDX-NO SGT
L1737798-03	MW-BN-05_051624	NWTPHDX-NO SGT

Analysis was filtered in the laboratory.

Lab Sample ID	Project Sample ID	Method
L1737798-02	01MW94_051524	6010D
R4072195-3		6010D

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	13600		379	1000	1	05/31/2024 21:40	WG2294769
Sulfate	12200		594	5000	1	05/31/2024 21:40	WG2294769

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	12100		102	1000	1	05/26/2024 17:56	WG2293654

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	82.5	J	31.6	100	1	05/25/2024 00:59	WG2292826
(S) a,a,a-Trifluorotoluene(FID)	*98.2*			*78.0-120*		*05/25/2024 00:59*	WG2292826

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	0.414		0.0160	0.0400	1	05/23/2024 13:31	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 13:31	WG2291812
1,1-Dichloroethene	0.429		0.0200	0.100	1	05/23/2024 13:31	WG2291812
cis-1,2-Dichloroethene	2.19		0.0276	0.100	1	05/23/2024 13:31	WG2291812
trans-1,2-Dichloroethene	0.121	J	0.0572	0.200	1	05/23/2024 13:31	WG2291812
Ethylbenzene	0.0460	J	0.0212	0.100	1	05/23/2024 13:31	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 13:31	WG2291812
Toluene	U		0.0500	0.200	1	05/23/2024 13:31	WG2291812
Trichloroethene	3.39		0.0160	0.0400	1	05/23/2024 13:31	WG2291812
Vinyl chloride	1.47		0.0273	0.100	1	05/23/2024 13:31	WG2291812
Xylenes, Total	U		0.191	0.260	1	05/23/2024 13:31	WG2291812
(S) Toluene-d8	*108*			*75.0-131*		*05/23/2024 13:31*	WG2291812
(S) 4-Bromofluorobenzene	*97.6*			*67.0-138*		*05/23/2024 13:31*	WG2291812
(S) 1,2-Dichloroethane-d4	*99.7*			*70.0-130*		*05/23/2024 13:31*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	2460		66.7	200	1	05/26/2024 01:51	WG2292236
Residual Range Organics (RRO)	814		83.3	250	1	05/26/2024 12:36	WG2292236
(S) o-Terphenyl	*70.5*			*52.0-156*		*05/26/2024 12:36*	WG2292236
(S) o-Terphenyl	*141*			*52.0-156*		*05/26/2024 01:51*	WG2292236

Sample Narrative:

L1737798-01 WG2292236: Sample resembles laboratory standard for Hydraulic Fluid.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	11900		379	1000	1	05/31/2024 22:28	WG2294769
Sulfate	6210		594	5000	1	05/31/2024 22:28	WG2294769

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	6200		102	1000	1	05/26/2024 18:13	WG2293654

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	835		18.0	100	1	05/21/2024 16:51	WG2289381
Iron,Dissolved	U		18.0	100	1	05/21/2024 12:54	WG2289375
Manganese	809		0.934	10.0	1	05/21/2024 16:51	WG2289381
Manganese,Dissolved	817		0.934	10.0	1	05/21/2024 12:54	WG2289375

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	54.4	B J	31.6	100	1	05/21/2024 13:57	WG2290300
(S) a,a,a-Trifluorotoluene(FID)	*92.8*			*78.0-120*		*05/21/2024 13:57*	WG2290300

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 13:50	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 13:50	WG2291812
cis-1,2-Dichloroethene	0.0690	J	0.0276	0.100	1	05/23/2024 13:50	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 13:50	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 13:50	WG2291812
Trichloroethene	1.41		0.0160	0.0400	1	05/23/2024 13:50	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 13:50	WG2291812
(S) Toluene-d8	*109*			*75.0-131*		*05/23/2024 13:50*	WG2291812
(S) 4-Bromofluorobenzene	*91.9*			*67.0-138*		*05/23/2024 13:50*	WG2291812
(S) 1,2-Dichloroethane-d4	*100*			*70.0-130*		*05/23/2024 13:50*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	823		66.7	200	1	05/26/2024 02:11	WG2292236
Residual Range Organics (RRO)	409		83.3	250	1	05/27/2024 15:19	WG2292236
(S) o-Terphenyl	*78.4*			*52.0-156*		*05/27/2024 15:19*	WG2292236
(S) o-Terphenyl	*138*			*52.0-156*		*05/26/2024 02:11*	WG2292236

Sample Narrative:

L1737798-02 WG2292236: Sample resembles laboratory standard for Hydraulic Fluid.

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	23500		102	1000	1	05/26/2024 18:48	WG2293654

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	1440		31.6	100	1	05/21/2024 14:20	WG2290300
(S) a,a,a-Trifluorotoluene(FID)	*88.0*			*78.0-120*		*05/21/2024 14:20*	WG2290300

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	14.4		0.0160	0.0400	1	05/23/2024 14:09	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 14:09	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 14:09	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 14:09	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 14:09	WG2291812
Ethylbenzene	8.97		0.0212	0.100	1	05/23/2024 14:09	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 14:09	WG2291812
Toluene	0.148	J	0.0500	0.200	1	05/23/2024 14:09	WG2291812
Trichloroethene	0.591		0.0160	0.0400	1	05/23/2024 14:09	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 14:09	WG2291812
Xylenes, Total	0.240	J	0.191	0.260	1	05/23/2024 14:09	WG2291812
(S) Toluene-d8	*107*			*75.0-131*		*05/23/2024 14:09*	WG2291812
(S) 4-Bromofluorobenzene	*95.7*			*67.0-138*		*05/23/2024 14:09*	WG2291812
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*05/23/2024 14:09*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	5820		66.7	200	1	05/26/2024 02:31	WG2292236
Residual Range Organics (RRO)	2180		83.3	250	1	05/27/2024 16:02	WG2292236
(S) o-Terphenyl	*78.9*			*52.0-156*		*05/27/2024 16:02*	WG2292236
(S) o-Terphenyl	*148*			*52.0-156*		*05/26/2024 02:31*	WG2292236

Sample Narrative:

L1737798-03 WG2292236: Sample resembles laboratory standard for Diesel.

L1737798-03 WG2292236: Sample resembles laboratory standard for Hydraulic Fluid.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Pentachlorophenol	U		0.326	1.04	1.04	05/23/2024 13:39	WG2291268
(S) 2-Fluorophenol	*35.6*			*10.0-120*		*05/23/2024 13:39*	WG2291268
(S) Phenol-d5	*26.9*			*10.0-120*		*05/23/2024 13:39*	WG2291268
(S) Nitrobenzene-d5	*71.1*			*10.0-127*		*05/23/2024 13:39*	WG2291268
(S) 2-Fluorobiphenyl	*59.0*			*10.0-130*		*05/23/2024 13:39*	WG2291268
(S) 2,4,6-Tribromophenol	*82.2*			*10.0-155*		*05/23/2024 13:39*	WG2291268
(S) p-Terphenyl-d14	*49.3*			*10.0-128*		*05/23/2024 13:39*	WG2291268

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	54.1	B J	31.6	100	1	05/21/2024 13:34	WG2290300
(S) a,a,a-Trifluorotoluene(FID)	*91.8*			*78.0-120*		*05/21/2024 13:34*	WG2290300

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0160	0.0400	1	05/23/2024 13:11	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 13:11	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 13:11	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 13:11	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 13:11	WG2291812
Ethylbenzene	U		0.0212	0.100	1	05/23/2024 13:11	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 13:11	WG2291812
Toluene	U		0.0500	0.200	1	05/23/2024 13:11	WG2291812
Trichloroethene	U		0.0160	0.0400	1	05/23/2024 13:11	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 13:11	WG2291812
Xylenes, Total	U		0.191	0.260	1	05/23/2024 13:11	WG2291812
(S) Toluene-d8	*106*			*75.0-131*		*05/23/2024 13:11*	WG2291812
(S) 4-Bromofluorobenzene	*98.4*			*67.0-138*		*05/23/2024 13:11*	WG2291812
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*		*05/23/2024 13:11*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		66.7	200	1	05/26/2024 02:51	WG2292236
Residual Range Organics (RRO)	207	J	83.3	250	1	05/26/2024 02:51	WG2292236
(S) o-Terphenyl	*121*			*52.0-156*		*05/26/2024 02:51*	WG2292236

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Pentachlorophenol	U		0.313	1.00	1	05/23/2024 14:01	WG2291268
(S) 2-Fluorophenol	*30.8*			*10.0-120*		*05/23/2024 14:01*	WG2291268
(S) Phenol-d5	*21.5*			*10.0-120*		*05/23/2024 14:01*	WG2291268
(S) Nitrobenzene-d5	*64.1*			*10.0-127*		*05/23/2024 14:01*	WG2291268
(S) 2-Fluorobiphenyl	*56.7*			*10.0-130*		*05/23/2024 14:01*	WG2291268
(S) 2,4,6-Tribromophenol	*67.0*			*10.0-155*		*05/23/2024 14:01*	WG2291268
(S) p-Terphenyl-d14	*50.8*			*10.0-128*		*05/23/2024 14:01*	WG2291268

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0160	0.0400	1	05/23/2024 12:33	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 12:33	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 12:33	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 12:33	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 12:33	WG2291812
Ethylbenzene	0.0230	J	0.0212	0.100	1	05/23/2024 12:33	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 12:33	WG2291812
Toluene	U		0.0500	0.200	1	05/23/2024 12:33	WG2291812
Trichloroethene	U		0.0160	0.0400	1	05/23/2024 12:33	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 12:33	WG2291812
Xylenes, Total	0.218	J	0.191	0.260	1	05/23/2024 12:33	WG2291812
(S) Toluene-d8	*109*			*75.0-131*		*05/23/2024 12:33*	WG2291812
(S) 4-Bromofluorobenzene	*96.7*			*67.0-138*		*05/23/2024 12:33*	WG2291812
(S) 1,2-Dichloroethane-d4	*104*			*70.0-130*		*05/23/2024 12:33*	WG2291812

Method Blank (MB)

(MB) R4080271-1 05/31/24 10:57

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		379	1000
Sulfate	U		594	5000

L1737798-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1737798-01 05/31/24 21:40 • (DUP) R4080271-3 05/31/24 21:56

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13600	13600	1	0.342		15
Sulfate	12200	12300	1	0.976		15

L1737940-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1737940-02 05/31/24 22:44 • (DUP) R4080271-5 05/31/24 23:00

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	25100	25000	1	0.343		15

Laboratory Control Sample (LCS)

(LCS) R4080271-2 05/31/24 11:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38800	96.9	80.0-120	
Sulfate	40000	40600	101	80.0-120	

L1737798-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1737798-01 05/31/24 21:40 • (MS) R4080271-4 05/31/24 22:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	13600	49900	90.9	1	80.0-120	
Sulfate	40000	12200	48800	91.5	1	80.0-120	

L1737940-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737940-02 05/31/24 22:44 • (MS) R4080271-6 05/31/24 23:15 • (MSD) R4080271-7 05/31/24 23:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	25100	59600	59700	86.1	86.4	1	80.0-120			0.211	15

Method Blank (MB)

(MB) R4074245-2 05/26/24 12:46

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TOC (Total Organic Carbon)	246	J	102	1000

L1737798-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1737798-02 05/26/24 18:13 • (DUP) R4074245-3 05/26/24 18:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	6200	6470	1	4.26		20

L1738756-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1738756-06 05/26/24 21:45 • (DUP) R4074245-6 05/26/24 22:00

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	1250	1140	1	9.64		20

Laboratory Control Sample (LCS)

(LCS) R4074245-1 05/26/24 12:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	25000	25000	99.9	85.0-115	

L1737798-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737798-03 05/26/24 18:48 • (MS) R4074245-4 05/26/24 19:08 • (MSD) R4074245-5 05/26/24 19:27

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	23500	50000	50200	106	107	1	85.0-115	E	E	0.279	20

L1738756-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738756-07 05/26/24 22:14 • (MS) R4074245-7 05/26/24 22:38 • (MSD) R4074245-8 05/26/24 22:56

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	838	26400	27400	102	106	1	85.0-115			3.49	20

Method Blank (MB)

(MB) R4072195-1 05/21/24 12:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron,Dissolved	U		18.0	100
Manganese,Dissolved	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4072195-2 05/21/24 12:41

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron,Dissolved	10000	9820	98.2	80.0-120	
Manganese,Dissolved	1000	1020	102	80.0-120	

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/21/24 12:43 • (MS) R4072195-4 05/21/24 12:46 • (MSD) R4072195-5 05/21/24 12:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	U	9780	9690	97.8	96.9	1	75.0-125			0.887	20
Manganese,Dissolved	1000	783	1760	1760	98.0	97.8	1	75.0-125			0.144	20

L1738216-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738216-04 05/21/24 12:49 • (MS) R4072195-6 05/21/24 12:51 • (MSD) R4072195-7 05/21/24 12:53

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	795	10800	10700	99.6	98.9	1	75.0-125			0.642	20
Manganese,Dissolved	1000	81.3	1080	1060	99.6	98.3	1	75.0-125			1.15	20

Method Blank (MB)

(MB) R4072452-1 05/21/24 15:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron	U		18.0	100
Manganese	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4072452-2 05/21/24 15:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron	10000	9160	91.6	80.0-120	
Manganese	1000	1060	106	80.0-120	

L1736727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1736727-01 05/21/24 15:47 • (MS) R4072452-4 05/21/24 15:54 • (MSD) R4072452-5 05/21/24 15:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron	10000	415	9560	9680	91.4	92.7	1	75.0-125			1.32	20
Manganese	1000	1090	2130	2120	104	103	1	75.0-125			0.672	20

Method Blank (MB)

(MB) R4073276-3 05/21/24 12:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	62.8	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*91.6*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4073276-1 05/21/24 09:52 • (LCSD) R4073276-2 05/21/24 10:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	4350	4900	87.0	98.0	70.0-124			11.9	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*108*	*78.0-120*				

Method Blank (MB)

(MB) R4074749-2 05/24/24 23:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074749-1 05/24/24 22:11 • (LCSD) R4074749-3 05/25/24 00:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	5490	5220	110	104	70.0-124			5.04	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*104*	*78.0-120*				

Method Blank (MB)

(MB) R4073740-2 05/23/24 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0160	0.0400
1,2-Dichloroethane	U		0.0190	0.100
1,1-Dichloroethene	U		0.0200	0.100
cis-1,2-Dichloroethene	U		0.0276	0.100
trans-1,2-Dichloroethene	U		0.0572	0.200
Ethylbenzene	U		0.0212	0.100
Tetrachloroethene	U		0.0280	0.100
Toluene	U		0.0500	0.200
Trichloroethene	U		0.0160	0.0400
Vinyl chloride	U		0.0273	0.100
Xylenes, Total	U		0.191	0.260
(S) Toluene-d8	*109*			*75.0-131*
(S) 4-Bromofluorobenzene	*92.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R4073740-1 05/23/24 07:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	4.23	84.6	70.0-123	
1,2-Dichloroethane	5.00	4.96	99.2	65.0-131	
1,1-Dichloroethene	5.00	4.24	84.8	65.0-131	
cis-1,2-Dichloroethene	5.00	4.64	92.8	73.0-125	
trans-1,2-Dichloroethene	5.00	4.43	88.6	71.0-125	
Ethylbenzene	5.00	4.53	90.6	74.0-126	
Tetrachloroethene	5.00	4.53	90.6	70.0-136	
Toluene	5.00	4.86	97.2	75.0-121	
Trichloroethene	5.00	4.35	87.0	76.0-126	
Vinyl chloride	5.00	4.18	83.6	63.0-134	
Xylenes, Total	15.0	13.1	87.3	72.0-127	
(S) Toluene-d8			*109*	*75.0-131*	
(S) 4-Bromofluorobenzene			*95.7*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*105*	*70.0-130*	

Method Blank (MB)

(MB) R4074228-1 05/25/24 18:47

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*121*			*52.0-156*

Method Blank (MB)

(MB) R4074354-1 05/27/24 14:58

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*67.0*			*52.0-156*

Laboratory Control Sample (LCS)

(LCS) R4074228-2 05/25/24 19:07

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	1500	1450	96.7	50.0-150	
(S) o-Terphenyl			*116*	*52.0-156*	

L1737771-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737771-02 05/25/24 21:36 • (MS) R4074091-1 05/25/24 20:56 • (MSD) R4074091-2 05/25/24 21:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1430	224	1650	1640	99.7	99.0	1	50.0-150			0.608	20
(S) o-Terphenyl					*76.8*	*75.3*		*52.0-156*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R4073660-2 05/23/24 13:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Pentachlorophenol	U		0.313	1.00
(S) 2-Fluorophenol	*33.8*			*10.0-120*
(S) Phenol-d5	*22.0*			*10.0-120*
(S) Nitrobenzene-d5	*62.3*			*10.0-127*
(S) 2-Fluorobiphenyl	*59.7*			*10.0-130*
(S) 2,4,6-Tribromophenol	*63.0*			*10.0-155*
(S) p-Terphenyl-d14	*51.3*			*10.0-128*

Laboratory Control Sample (LCS)

(LCS) R4073660-1 05/23/24 12:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Pentachlorophenol	50.0	21.5	43.0	23.0-120	
(S) 2-Fluorophenol			*36.0*	*10.0-120*	
(S) Phenol-d5			*24.4*	*10.0-120*	
(S) Nitrobenzene-d5			*68.5*	*10.0-127*	
(S) 2-Fluorobiphenyl			*60.9*	*10.0-130*	
(S) 2,4,6-Tribromophenol			*74.0*	*10.0-155*	
(S) p-Terphenyl-d14			*51.0*	*10.0-128*	

L1737628-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737628-03 05/23/24 15:05 • (MS) R4073660-3 05/23/24 15:26 • (MSD) R4073660-4 05/23/24 15:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Pentachlorophenol	50.0	U	21.5	24.8	43.0	49.6	1	10.0-128			14.3	37
(S) 2-Fluorophenol					*32.8*	*32.5*		*10.0-120*				
(S) Phenol-d5					*22.2*	*22.0*		*10.0-120*				
(S) Nitrobenzene-d5					*65.1*	*73.3*		*10.0-127*				
(S) 2-Fluorobiphenyl					*56.0*	*60.7*		*10.0-130*				
(S) 2,4,6-Tribromophenol					*70.0*	*73.0*		*10.0-155*				
(S) p-Terphenyl-d14					*44.1*	*46.9*		*10.0-128*				

INTERNAL STANDARD SUMMARY

Instrument: VOCGC5 • File ID: 0521_03

05/21/24 09:52

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0521_03	39710720	963441500
Upper Limit		79421440	1926883000
Lower Limit		19855360	481720700
LCS R4073276-1 WG2290300 1x	0521_03u	39710720	963441500
LCSD R4073276-2 WG2290300 1x	0521_04	33886490	835300300
BLANK R4073276-3 WG2290300 1x	0521_06	32956170	795127600
L1737798-04 WG2290300 1x	0521_09	35678670	852957100
L1737798-02 WG2290300 1x	0521_10	36693410	885557400
L1737798-03 WG2290300 1x	0521_11	37783920	865647500

Instrument: VOCGC12 • File ID: 0524_02

05/24/24 22:11

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0524_02	755530400	771278800
Upper Limit		1511061000	1542558000
Lower Limit		377765200	385639400
LCS R4074749-1 WG2292826 1x	0524_02uA	755530400	771278800
BLANK R4074749-2 WG2292826 1x	0524_05A	668397600	670223900
LCSD R4074749-3 WG2292826 1x	0524_06A	762839500	788148900
L1737798-01 WG2292826 1x	0524_08	743282300	743414000

INTERNAL STANDARD SUMMARY

Instrument: VOCMS53 • File ID: 0523_03

05/23/24 07:45

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0523_03	843786.50	352474	256853.10
Upper Limit		1687573	704948	513706
Lower Limit		421893	176237	128427
LCS R4073740-1 WG2291812 1x	0523_03LCSA	843786.50	352474	256853.10
BLANK R4073740-2 WG2291812 1x	0523_06A	837579.90	339527.70	240118.90
L1737798-05 WG2291812 1x	0523_18	716081.20	286135.10	224270.10
L1737798-04 WG2291812 1x	0523_20	716890.70	298625.70	247641.40
L1737798-01 WG2291812 1x	0523_21	720038	284589.40	221196
L1737798-02 WG2291812 1x	0523_22	741015.40	302118.30	213844.40
L1737798-03 WG2291812 1x	0523_23	698633.80	297028.80	224821.60

INTERNAL STANDARD SUMMARY

Instrument: BNAMS29 • File ID: 0523A_02-1

05/23/24 12:11

Sample ID	File ID	1,4-DICHLOROBENZENE-D4	NAPHTHALENE-D8	ACENAPHTHENE-D10	PHENANTHRENE-D10	CHRYSENE-D12	PERYLENE-D12
		Response	Response	Response	Response	Response	Response
Standard	0523A_02-1	53777	204898	133983	271387	273399	274412
Upper Limit		107554	409796	267966	542774	546798	548824
Lower Limit		26889	102449	66992	135694	136700	137206
LCS R4073660-1 WG2291268 1x	0523A_04	57281	224436	144878	307810	309990	313395
BLANK R4073660-2 WG2291268 1x	0523A_05	67745	257206	166671	361145	355834	357153
L1737798-03 WG2291268 1.04x	0523A_06	58081	234890	146052	304161	302207	318686
L1737798-04 WG2291268 1x	0523A_07	61689	243305	155809	337864	345450	355536
MS R4073660-3 WG2291268 1x	0523A_11	71773	288641	186553	387891	383728	384136
MSD R4073660-4 WG2291268 1x	0523A_12	69409	262688	169972	358337	362082	356511

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address: Arcadis - BNSF Region 2, 1420 5th Ave Suite 2400, Seattle, WA 98101

Billing Information: Accounts Payable, 1420 5th Ave, Suite 2400, Seattle, WA 98101

Report to: Kyle Haslam

Email To: kyle.haslam@arcadis.com, emily.zehmund@arcadis.com

Project Description: BNSF Time Oil Bulk Terminal

City/State Collected: Seattle, WA

Please Circle: (PT) MT CT ET

Phone: 206-726-4753

Client Project # 30195976

Lab Project # BNSF2ARCA-TimeOil

Collected by (print): Carlie Wong

Site/Facility ID # BNSF Time Oil

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified) — Quote #

Immediately Packed on Ice N ___ Y ___

___ Same Day ___ Five Day
___ Next Day ✓ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day 8260 only

Date Results Needed: STD TAT

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	8260D 40mL Amb NoPres	NWTPH-Dx NoSGT 40mL Amb HCl BT	NWTPH-Gx 40mL Amb HCl	TOC 250mL Amb H2SO4	CVOC 8260C 40mL Amb HCl	BTEX 8260C 40mL Amb HCl	Total Metals - FF, NM 250mL HDPE-HNO3	Diss Metals - FF, NM 250mL HDPE-NoPres	CHLORIDE, Sulfate 125mL HDPE-NoPres		Remarks	Sample # (lab only)
01MW96_051624	G	GW	—	5/16/24	1315	18	X	X	X	X	X	X			X		Hold PCB	-01
01MW94_051524	G	GW	—	5/15/24	1415	15		X	X	X	X		X	X	X			-02
MW-BN-05_051624	G	GW	—	5/16/24	1215	18	X	X	X	X	X	X						-03
EB_051624	G	GW	—	5/16/24	1000	13	X	X	X		X							-04
TRIP BLANK	G CW	GW	—	—	—	2					X	X						-05

Chain of Custody Page 1 of 1

Pace — PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 737798

M201

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier __ _____

Tracking # 107002047752

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No, HCl / MeoH, TBR	Hold:	Condition: NCF / OK
	5/16/24	1615		2		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.4+0.1=3.5 °C Bottles Received: 64	PH-10BDH5021 TRC-2052362 Login: Date/Time CR6-20221V	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Charles Stevenson	Date: 5-17-24 Time: 9:00		

ANALYTICAL REPORT

June 04, 2024

ARCADIS - BNSF Region 2

Sample Delivery Group:	L1737799
Samples Received:	05/17/2024
Project Number:	30195976
Description:	BNSF Time Oil Bulk Terminal - Seattle, WA
Site:	BNSF TIME OIL
Report To:	Kyle Haslam 1420 5th Avenue, Suite 2400 Seattle, WA 98101

Entire Report Reviewed By:

Andi R Jones
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

01MW92_051624 L1737799-01 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 09:15 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2288610	1	05/21/24 05:15	05/21/24 05:15	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2291869	1	05/25/24 08:35	05/25/24 08:35	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289375	1	05/21/24 09:57	05/21/24 12:59	JTM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289381	1	05/21/24 12:13	05/21/24 16:54	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2290300	5	05/21/24 15:06	05/21/24 15:06	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292895	20	05/25/24 00:48	05/25/24 00:48	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 03:12	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/27/24 15:40	MAA	Mt. Juliet, TN

MW-BN-03_051524 L1737799-02 GW

Collected by: Carlin Wong | Collected date/time: 05/15/24 16:30 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2288610	1	05/21/24 05:31	05/21/24 05:31	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2291869	1	05/25/24 08:56	05/25/24 08:56	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289375	1	05/21/24 09:57	05/21/24 12:43	JTM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2289383	1	05/23/24 10:32	05/23/24 19:57	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292386	50	05/24/24 01:27	05/24/24 01:27	JHH	Mt. Juliet, TN

MW-BN-04_051624 L1737799-03 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 11:15 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2290300	1	05/21/24 14:43	05/21/24 14:43	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 14:28	05/23/24 14:28	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/26/24 03:32	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2292236	1	05/25/24 13:08	05/27/24 16:23	MAA	Mt. Juliet, TN

TRIP BLANK L1737799-04 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 00:00 | Received date/time: 05/17/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 12:52	05/23/24 12:52	JHH	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Andi R Jones
Project Manager

Sample Delivery Group (SDG) Narrative

Analysis was filtered in the laboratory.

Lab Sample ID	Project Sample ID	Method
L1737799-01	01MW92_051624	6010D
L1737799-02	MW-BN-03_051524	6010D
R4072195-3		6010D

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1737799-01	01MW92_051624	NWTPHDX-NO SGT
L1737799-03	MW-BN-04_051624	NWTPHDX-NO SGT

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8380		379	1000	1	05/21/2024 05:15	WG2288610
Sulfate	7990		594	5000	1	05/21/2024 05:15	WG2288610

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	10700		102	1000	1	05/25/2024 08:35	WG2291869

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	613		18.0	100	1	05/21/2024 16:54	WG2289381
Iron,Dissolved	U		18.0	100	1	05/21/2024 12:59	WG2289375
Manganese	748		0.934	10.0	1	05/21/2024 16:54	WG2289381
Manganese,Dissolved	698		0.934	10.0	1	05/21/2024 12:59	WG2289375

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	938	B	158	500	5	05/21/2024 15:06	WG2290300
(S) a,a,a-Trifluorotoluene(FID)	*93.2*			*78.0-120*		*05/21/2024 15:06*	WG2290300

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		1.88	20.0	20	05/25/2024 00:48	WG2292895
1,2-Dichloroethane	U		1.64	20.0	20	05/25/2024 00:48	WG2292895
1,1-Dichloroethene	U		3.76	20.0	20	05/25/2024 00:48	WG2292895
cis-1,2-Dichloroethene	212		2.52	20.0	20	05/25/2024 00:48	WG2292895
trans-1,2-Dichloroethene	88.2		2.98	20.0	20	05/25/2024 00:48	WG2292895
Ethylbenzene	U		2.74	20.0	20	05/25/2024 00:48	WG2292895
Tetrachloroethene	U		6.00	20.0	20	05/25/2024 00:48	WG2292895
Toluene	U		5.56	20.0	20	05/25/2024 00:48	WG2292895
Trichloroethene	1200		3.80	20.0	20	05/25/2024 00:48	WG2292895
Vinyl chloride	U		4.68	20.0	20	05/25/2024 00:48	WG2292895
Xylenes, Total	U		3.48	60.0	20	05/25/2024 00:48	WG2292895
(S) Toluene-d8	*111*			*80.0-120*		*05/25/2024 00:48*	WG2292895
(S) 4-Bromofluorobenzene	*110*			*77.0-126*		*05/25/2024 00:48*	WG2292895
(S) 1,2-Dichloroethane-d4	*92.0*			*70.0-130*		*05/25/2024 00:48*	WG2292895

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	2610		66.7	200	1	05/26/2024 03:12	WG2292236
Residual Range Organics (RRO)	1340		83.3	250	1	05/27/2024 15:40	WG2292236
(S) o-Terphenyl	*83.7*			*52.0-156*		*05/27/2024 15:40*	WG2292236
(S) o-Terphenyl	*144*			*52.0-156*		*05/26/2024 03:12*	WG2292236

Sample Narrative:

L1737799-01 WG2292236: Sample resembles laboratory standard for Hydraulic Fluid.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8030		379	1000	1	05/21/2024 05:31	WG2288610
Sulfate	22700		594	5000	1	05/21/2024 05:31	WG2288610

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	8010		102	1000	1	05/25/2024 08:56	WG2291869

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	1510		18.0	100	1	05/23/2024 19:57	WG2289383
Iron,Dissolved	U		18.0	100	1	05/21/2024 12:43	WG2289375
Manganese	702		0.934	10.0	1	05/23/2024 19:57	WG2289383
Manganese,Dissolved	783		0.934	10.0	1	05/21/2024 12:43	WG2289375

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		4.71	50.0	50	05/24/2024 01:27	WG2292386
1,2-Dichloroethane	U		4.09	50.0	50	05/24/2024 01:27	WG2292386
1,1-Dichloroethene	U		9.40	50.0	50	05/24/2024 01:27	WG2292386
cis-1,2-Dichloroethene	138		6.30	50.0	50	05/24/2024 01:27	WG2292386
trans-1,2-Dichloroethene	14.7	J	7.45	50.0	50	05/24/2024 01:27	WG2292386
Ethylbenzene	U		6.85	50.0	50	05/24/2024 01:27	WG2292386
Tetrachloroethene	U		15.0	50.0	50	05/24/2024 01:27	WG2292386
Toluene	U		13.9	50.0	50	05/24/2024 01:27	WG2292386
Trichloroethene	1650		9.50	50.0	50	05/24/2024 01:27	WG2292386
Vinyl chloride	U		11.7	50.0	50	05/24/2024 01:27	WG2292386
Xylenes, Total	U		8.70	150	50	05/24/2024 01:27	WG2292386
(S) Toluene-d8	*108*			*80.0-120*		*05/24/2024 01:27*	WG2292386
(S) 4-Bromofluorobenzene	*98.5*			*77.0-126*		*05/24/2024 01:27*	WG2292386
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*05/24/2024 01:27*	WG2292386

Sample Narrative:

L1737799-02 WG2292386: Target compounds too high to run at a lower dilution.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	385	B	31.6	100	1	05/21/2024 14:43	WG2290300
(S) a,a,a-Trifluorotoluene(FID)	*89.2*			*78.0-120*		*05/21/2024 14:43*	WG2290300

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	0.339		0.0160	0.0400	1	05/23/2024 14:28	WG2291812
1,2-Dichloroethane	0.109		0.0190	0.100	1	05/23/2024 14:28	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 14:28	WG2291812
cis-1,2-Dichloroethene	0.244		0.0276	0.100	1	05/23/2024 14:28	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 14:28	WG2291812
Ethylbenzene	0.0220	J	0.0212	0.100	1	05/23/2024 14:28	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 14:28	WG2291812
Toluene	U		0.0500	0.200	1	05/23/2024 14:28	WG2291812
Trichloroethene	1.55		0.0160	0.0400	1	05/23/2024 14:28	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 14:28	WG2291812
Xylenes, Total	U		0.191	0.260	1	05/23/2024 14:28	WG2291812
trans-1,4-Dichloro-2-butene	U		0.0560	0.200	1	05/23/2024 14:28	WG2291812
(S) Toluene-d8	*109*			*75.0-131*		*05/23/2024 14:28*	WG2291812
(S) 4-Bromofluorobenzene	*97.2*			*67.0-138*		*05/23/2024 14:28*	WG2291812
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*05/23/2024 14:28*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	5680		66.7	200	1	05/26/2024 03:32	WG2292236
Residual Range Organics (RRO)	3160		83.3	250	1	05/27/2024 16:23	WG2292236
(S) o-Terphenyl	*81.1*			*52.0-156*		*05/27/2024 16:23*	WG2292236
(S) o-Terphenyl	*142*			*52.0-156*		*05/26/2024 03:32*	WG2292236

Sample Narrative:

L1737799-03 WG2292236: Sample resembles laboratory standard for Hydraulic Fluid.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0160	0.0400	1	05/23/2024 12:52	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 12:52	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 12:52	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 12:52	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 12:52	WG2291812
Ethylbenzene	U		0.0212	0.100	1	05/23/2024 12:52	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 12:52	WG2291812
Toluene	U		0.0500	0.200	1	05/23/2024 12:52	WG2291812
Trichloroethene	U		0.0160	0.0400	1	05/23/2024 12:52	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 12:52	WG2291812
Xylenes, Total	U		0.191	0.260	1	05/23/2024 12:52	WG2291812
(S) Toluene-d8	*106*			*75.0-131*		*05/23/2024 12:52*	WG2291812
(S) 4-Bromofluorobenzene	*95.4*			*67.0-138*		*05/23/2024 12:52*	WG2291812
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*05/23/2024 12:52*	WG2291812

Method Blank (MB)

(MB) R4072189-1 05/20/24 11:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	429	J	379	1000
Sulfate	U		594	5000

L1734471-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1734471-05 05/21/24 00:45 • (DUP) R4072189-3 05/21/24 01:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	158000	158000	1	0.0515		15
Sulfate	5390	5180	1	3.83		15

L1737799-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1737799-02 05/21/24 05:31 • (DUP) R4072189-5 05/21/24 05:47

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8030	8000	1	0.403		15
Sulfate	22700	22600	1	0.108		15

Laboratory Control Sample (LCS)

(LCS) R4072189-2 05/20/24 11:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38200	95.5	80.0-120	
Sulfate	40000	39700	99.2	80.0-120	

L1734471-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1734471-05 05/21/24 00:45 • (MS) R4072189-4 05/21/24 01:17

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	158000	165000	16.6	1	80.0-120	J6
Sulfate	40000	5390	41500	90.2	1	80.0-120	

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/21/24 05:31 • (MS) R4072189-6 05/21/24 06:03 • (MSD) R4072189-7 05/21/24 06:19

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	8030	43700	44000	89.1	90.0	1	80.0-120			0.846	15
Sulfate	40000	22700	56500	56800	84.6	85.3	1	80.0-120			0.489	15

Method Blank (MB)

(MB) R4074100-2 05/25/24 00:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TOC (Total Organic Carbon)	132	J	102	1000

L1737698-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1737698-08 05/25/24 00:40 • (DUP) R4074100-3 05/25/24 01:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	4820	4830	1	0.104		20

L1737737-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1737737-03 05/25/24 05:46 • (DUP) R4074100-6 05/25/24 06:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	4660	4700	1	0.813		20

Laboratory Control Sample (LCS)

(LCS) R4074100-1 05/25/24 00:03

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	25000	26900	107	85.0-115	

L1737698-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737698-09 05/25/24 01:21 • (MS) R4074100-4 05/25/24 01:43 • (MSD) R4074100-5 05/25/24 02:05

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	5470	32500	32400	108	108	1	85.0-115			0.555	20

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/25/24 08:56 • (MS) R4074100-7 05/25/24 09:18 • (MSD) R4074100-8 05/25/24 09:40

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	8010	34400	34300	105	105	1	85.0-115			0.0873	20

Method Blank (MB)

(MB) R4072195-1 05/21/24 12:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron,Dissolved	U		18.0	100
Manganese,Dissolved	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4072195-2 05/21/24 12:41

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron,Dissolved	10000	9820	98.2	80.0-120	
Manganese,Dissolved	1000	1020	102	80.0-120	

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/21/24 12:43 • (MS) R4072195-4 05/21/24 12:46 • (MSD) R4072195-5 05/21/24 12:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	U	9780	9690	97.8	96.9	1	75.0-125			0.887	20
Manganese,Dissolved	1000	783	1760	1760	98.0	97.8	1	75.0-125			0.144	20

L1738216-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738216-04 05/21/24 12:49 • (MS) R4072195-6 05/21/24 12:51 • (MSD) R4072195-7 05/21/24 12:53

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	795	10800	10700	99.6	98.9	1	75.0-125			0.642	20
Manganese,Dissolved	1000	81.3	1080	1060	99.6	98.3	1	75.0-125			1.15	20

Method Blank (MB)

(MB) R4072452-1 05/21/24 15:40

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Iron	U		18.0	100
Manganese	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4072452-2 05/21/24 15:44

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Iron	10000	9160	91.6	80.0-120	
Manganese	1000	1060	106	80.0-120	

L1736727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1736727-01 05/21/24 15:47 • (MS) R4072452-4 05/21/24 15:54 • (MSD) R4072452-5 05/21/24 15:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Iron	10000	415	9560	9680	91.4	92.7	1	75.0-125			1.32	20
Manganese	1000	1090	2130	2120	104	103	1	75.0-125			0.672	20

Method Blank (MB)

(MB) R4073510-1 05/23/24 19:51

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Iron	U		18.0	100
Manganese	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4073510-2 05/23/24 19:54

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Iron	10000	10000	100	80.0-120	
Manganese	1000	1030	103	80.0-120	

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/23/24 19:57 • (MS) R4073510-4 05/23/24 20:02 • (MSD) R4073510-5 05/23/24 20:05

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Iron	10000	1510	11000	11100	95.1	95.9	1	75.0-125			0.716	20
Manganese	1000	702	1680	1690	98.2	99.3	1	75.0-125			0.660	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R4073276-3 05/21/24 12:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	62.8	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*91.6*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4073276-1 05/21/24 09:52 • (LCSD) R4073276-2 05/21/24 10:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	4350	4900	87.0	98.0	70.0-124			11.9	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*108*	*78.0-120*				

Method Blank (MB)

(MB) R4073740-2 05/23/24 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0160	0.0400
1,2-Dichloroethane	U		0.0190	0.100
1,1-Dichloroethene	U		0.0200	0.100
cis-1,2-Dichloroethene	U		0.0276	0.100
trans-1,2-Dichloroethene	U		0.0572	0.200
Ethylbenzene	U		0.0212	0.100
Tetrachloroethene	U		0.0280	0.100
Toluene	U		0.0500	0.200
Trichloroethene	U		0.0160	0.0400
Vinyl chloride	U		0.0273	0.100
Xylenes, Total	U		0.191	0.260
trans-1,4-Dichloro-2-butene	U		0.0560	0.200
(S) Toluene-d8	*109*			*75.0-131*
(S) 4-Bromofluorobenzene	*92.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R4073740-1 05/23/24 07:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	4.23	84.6	70.0-123	
1,2-Dichloroethane	5.00	4.96	99.2	65.0-131	
1,1-Dichloroethene	5.00	4.24	84.8	65.0-131	
cis-1,2-Dichloroethene	5.00	4.64	92.8	73.0-125	
trans-1,2-Dichloroethene	5.00	4.43	88.6	71.0-125	
Ethylbenzene	5.00	4.53	90.6	74.0-126	
Tetrachloroethene	5.00	4.53	90.6	70.0-136	
Toluene	5.00	4.86	97.2	75.0-121	
Trichloroethene	5.00	4.35	87.0	76.0-126	
Vinyl chloride	5.00	4.18	83.6	63.0-134	
Xylenes, Total	15.0	13.1	87.3	72.0-127	
trans-1,4-Dichloro-2-butene	5.00	5.88	118	45.0-143	
(S) Toluene-d8			*109*	*75.0-131*	
(S) 4-Bromofluorobenzene			*95.7*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*105*	*70.0-130*	

Method Blank (MB)

(MB) R4073763-3 05/23/24 19:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
Ethylbenzene	U		0.137	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
Trichloroethene	U		0.190	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*96.6*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*99.6*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4073763-1 05/23/24 17:39 • (LCSD) R4073763-2 05/23/24 18:37

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.21	4.46	84.2	89.2	70.0-123			5.77	20
1,2-Dichloroethane	5.00	4.66	5.03	93.2	101	70.0-128			7.64	20
1,1-Dichloroethene	5.00	4.01	4.50	80.2	90.0	71.0-124			11.5	20
cis-1,2-Dichloroethene	5.00	4.53	4.79	90.6	95.8	73.0-120			5.58	20
trans-1,2-Dichloroethene	5.00	4.25	4.60	85.0	92.0	73.0-120			7.91	20
Ethylbenzene	5.00	4.55	4.87	91.0	97.4	79.0-123			6.79	20
Tetrachloroethene	5.00	4.69	4.97	93.8	99.4	72.0-132			5.80	20
Toluene	5.00	4.89	5.03	97.8	101	79.0-120			2.82	20
Trichloroethene	5.00	4.40	4.62	88.0	92.4	78.0-124			4.88	20
Vinyl chloride	5.00	4.24	4.47	84.8	89.4	67.0-131			5.28	20
Xylenes, Total	15.0	13.9	14.6	92.7	97.3	79.0-123			4.91	20
(S) Toluene-d8				*107*	*107*	*80.0-120*				
(S) 4-Bromofluorobenzene				*93.8*	*96.3*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*103*	*107*	*70.0-130*				

L1737799-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737799-02 05/24/24 01:27 • (MS) R4073763-4 05/24/24 03:13 • (MSD) R4073763-5 05/24/24 03:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	250	U	281	263	112	105	50	17.0-158			6.62	27
1,2-Dichloroethane	250	U	320	298	128	119	50	29.0-151			7.12	27
1,1-Dichloroethene	250	U	298	277	119	111	50	11.0-160			7.30	29
cis-1,2-Dichloroethene	250	138	442	398	122	104	50	10.0-160			10.5	27
trans-1,2-Dichloroethene	250	14.7	327	287	125	109	50	17.0-153			13.0	27
Ethylbenzene	250	U	281	274	112	110	50	30.0-155			2.52	27
Tetrachloroethene	250	U	284	284	114	114	50	10.0-160			0.000	27
Toluene	250	U	294	288	118	115	50	26.0-154			2.06	28
Trichloroethene	250	1650	1810	1810	64.0	64.0	50	10.0-160			0.000	25
Vinyl chloride	250	U	294	278	118	111	50	10.0-160			5.59	27
Xylenes, Total	750	U	859	842	115	112	50	29.0-154			2.00	28
(S) Toluene-d8					*104*	*105*		*80.0-120*				
(S) 4-Bromofluorobenzene					*96.3*	*94.8*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*111*	*107*		*70.0-130*				

Sample Narrative:

OS: Target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R4074170-3 05/24/24 18:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
Ethylbenzene	U		0.137	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
Trichloroethene	U		0.190	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*111*			*80.0-120*
(S) 4-Bromofluorobenzene	*110*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*92.0*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074170-1 05/24/24 17:31 • (LCSD) R4074170-2 05/24/24 17:54

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	5.39	4.97	108	99.4	70.0-123			8.11	20
1,2-Dichloroethane	5.00	5.37	4.95	107	99.0	70.0-128			8.14	20
1,1-Dichloroethene	5.00	5.17	4.83	103	96.6	71.0-124			6.80	20
cis-1,2-Dichloroethene	5.00	5.23	4.85	105	97.0	73.0-120			7.54	20
trans-1,2-Dichloroethene	5.00	5.36	5.06	107	101	73.0-120			5.76	20
Ethylbenzene	5.00	5.63	5.29	113	106	79.0-123			6.23	20
Tetrachloroethene	5.00	5.82	5.41	116	108	72.0-132			7.30	20
Toluene	5.00	5.51	5.19	110	104	79.0-120			5.98	20
Trichloroethene	5.00	5.36	4.96	107	99.2	78.0-124			7.75	20
Vinyl chloride	5.00	5.82	5.36	116	107	67.0-131			8.23	20
Xylenes, Total	15.0	16.6	15.7	111	105	79.0-123			5.57	20
(S) Toluene-d8				*110*	*111*	*80.0-120*				
(S) 4-Bromofluorobenzene				*110*	*110*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*93.5*	*92.7*	*70.0-130*				

Method Blank (MB)

(MB) R4074228-1 05/25/24 18:47

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*121*			*52.0-156*

Method Blank (MB)

(MB) R4074354-1 05/27/24 14:58

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*67.0*			*52.0-156*

Laboratory Control Sample (LCS)

(LCS) R4074228-2 05/25/24 19:07

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	1500	1450	96.7	50.0-150	
(S) o-Terphenyl			*116*	*52.0-156*	

L1737771-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737771-02 05/25/24 21:36 • (MS) R4074091-1 05/25/24 20:56 • (MSD) R4074091-2 05/25/24 21:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1430	224	1650	1640	99.7	99.0	1	50.0-150			0.608	20
(S) o-Terphenyl					*76.8*	*75.3*		*52.0-156*				

INTERNAL STANDARD SUMMARY

Instrument: VOCGC5 • File ID: 0521_03

05/21/24 09:52

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0521_03	39710720	963441500
Upper Limit		79421440	1926883000
Lower Limit		19855360	481720700
LCS R4073276-1 WG2290300 1x	0521_03u	39710720	963441500
LCSD R4073276-2 WG2290300 1x	0521_04	33886490	835300300
BLANK R4073276-3 WG2290300 1x	0521_06	32956170	795127600
L1737799-03 WG2290300 1x	0521_12	35151250	821022700
L1737799-01 WG2290300 5x	0521_13	33296830	808551000

INTERNAL STANDARD SUMMARY

Instrument: VOCMS30 • File ID: 0524a_02-1

05/24/24 17:31

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0524a_02-1	273507	128957	139719
Upper Limit		547014	257914	279438
Lower Limit		136754	64479	69860
LCS R4074170-1 WG2292895 1x	0524a_02LCS_D	273507	128957	139719
LCSD R4074170-2 WG2292895 1x	0524a_03D	268993	124856	137807
BLANK R4074170-3 WG2292895 1x	0524a_05D	253524	116489	127191
L1737799-01 WG2292895 20x	0524A_20	243141	112810	123300

Instrument: VOCMS53 • File ID: 0523_03

05/23/24 07:45

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0523_03	843786.50	352474	256853.10
Upper Limit		1687573	704948	513706
Lower Limit		421893	176237	128427
LCS R4073740-1 WG2291812 1x	0523_03LCSA	843786.50	352474	256853.10
BLANK R4073740-2 WG2291812 1x	0523_06A	837579.90	339527.70	240118.90
L1737799-04 WG2291812 1x	0523_19	774240.40	318911.10	256952.70
L1737799-03 WG2291812 1x	0523_24	694748.90	283015.80	204083.50

Instrument: VOCMS53 • File ID: 0523_34

05/23/24 17:39

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0523_34	763090	316550.50	230351.70
Upper Limit		1526180	633101	460703
Lower Limit		381545	158275	115176
LCS R4073763-1 WG2292386 1x	0523_34LCS	763090	316550.50	230351.70
LCSD R4073763-2 WG2292386 1x	0523_37	718937.30	303697.30	237343.20
BLANK R4073763-3 WG2292386 1x	0523_39	698166.20	273815.10	219906.50
L1737799-02 WG2292386 50x	0523_57	684481.60	273179.10	236891.10
MS R4073763-4 WG2292386 50x	0523_61	677392.40	293595	237578

INTERNAL STANDARD SUMMARY

Instrument: VOCMS53 • File ID: 0523_34

05/23/24 17:39

Sample ID	File ID	8260-FLUOROBENZENE Response	8260-CHLOROBENZENE-D5 Response	8260-1,4-DICHLOROBENZENE-D4 Response
MSD R4073763-5 WG2292386 50x	0523_62	693569	293435.60	232834

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Chain of Custody Page 1 of 1

Pace® PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1737759

A033

Acctnum:
Template:
Prelogin:
PM:
PB:
Shipped Via:

Company Name/Address: Arcadis - BNSF Region 2, 1420 5th Ave, Suite 2400, Seattle, WA 98101

Billing Information: Accounts Payable, 1420 5th Ave, Suite 2400, Seattle, WA

Pres Chk

Report to: Kyle Haslam

Email To: kyle.haslam@arcadis.com, emily.zikmund@arcadis.com

Project Description: BNSF Time Oil Bulk Terminal

City/State Collected: Seattle, WA

Please Circle: PT MT CT ET (PT circled)

Phone: 206-726-4753

Client Project # 30195976

Lab Project # BNSF2ARCA-TimeOil

Collected by (print): Carlin Wong

Site/Facility ID # BNSF Time Oil

P.O. #

Collected by (signature): [signature]

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ✓ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only) 8260 only
___ Three Day

Quote #

Immediately Packed on Ice N___ Y ✓

Date Results Needed: STD TAT

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	8270 PP 100mL Amb NoPres	NWTPHDx NoSGT 40mL Amb HCl BT	NWTPHGx 40mL Amb HCl	TOC 250mL Amb - HCl	CVOC 8260 40mL Amb HCl	BTEX 8260 40mL Amb HCl	Total Metals - FE, MN 250mL HDPE-HNO3	Diss Metals - FE, MN 250mLHDPE-NoPres	CHLORIDE, Sulfate 125mLHDPE-NoPres		Remarks	Sample # (lab only)
01MW92_051624	G	GW	–	5/16/24	0915	15		X	X	X	X	X	X	X	X			-01
MW-BN-03_051524	G	GW	–	5/15/24	1630	30				X	X	X	X	X	X		MS/MSD	-02
MW-BN-04_051624	G	GW	–	5/16/24	1115	11		X	X		X	X						-03
TRIP BLANK	~~G~~ –	GW	–	–	–	2					X	X						-04

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_________

Remarks: MS/MSD: V8260, ~~NWTPH-Gx, NWTPH-Dx~~ only CW 5/16/24

pH _______ Temp _______
Flow _______ Other _______

Samples returned via:
__ UPS __ FedEx __ Courier __ ______

Tracking # 1070 0204 7241

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	
[signature]	5/16/24	1615		Trip Blank Received: Yes / No; HCL / MeoH; TBR (2)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: E248°C 3.4+-1=3.5; Bottles Received: 56
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) alexa mitchell	Date: 5/17/24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

June 18, 2024

Revised Report

ARCADIS - BNSF Region 2

Sample Delivery Group:	L1738205
Samples Received:	05/18/2024
Project Number:	30195976
Description:	BNSF Time Oil Bulk Terminal - Seattle, WA
Site:	BNSF TIME OIL
Report To:	Kyle Haslam 1420 5th Avenue, Suite 2400 Seattle, WA 98101

Entire Report Reviewed By:

Andi R Jones
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

01MW95_051724 L1738205-01 GW

Collected by: Carlin Wong | Collected date/time: 05/17/24 10:15 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294791	1	06/05/24 06:42	06/05/24 06:42	JD	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293656	1	05/27/24 12:01	05/27/24 12:01	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292150	1	05/28/24 05:10	05/29/24 12:35	DJS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292933	1	05/28/24 15:23	05/29/24 12:01	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 14:47	05/23/24 14:47	JHH	Mt. Juliet, TN

MW-BN-01_051724 L1738205-02 GW

Collected by: Carlin Wong | Collected date/time: 05/17/24 11:00 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294791	1	06/05/24 06:55	06/05/24 06:55	JD	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293656	1	05/27/24 12:22	05/27/24 12:22	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292150	1	05/28/24 05:10	05/29/24 12:39	DJS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292933	1	05/28/24 15:23	05/29/24 12:03	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292455	1	05/25/24 02:14	05/25/24 02:14	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 15:06	05/23/24 15:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293586	1	05/29/24 18:35	05/31/24 00:44	MAA	Mt. Juliet, TN

MW-BN-02_051724 L1738205-03 GW

Collected by: Carlin Wong | Collected date/time: 05/17/24 08:30 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294791	1	06/05/24 07:09	06/05/24 07:09	JD	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293656	1	05/27/24 12:42	05/27/24 12:42	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292150	1	05/28/24 05:10	05/29/24 12:42	DJS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292933	1	05/28/24 15:23	05/29/24 12:08	DJS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2295274	1	05/30/24 13:36	05/31/24 09:34	JTM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292455	1	05/25/24 02:36	05/25/24 02:36	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 15:25	05/23/24 15:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293586	1	05/29/24 18:35	05/31/24 02:08	MAA	Mt. Juliet, TN

01MW98_051624 L1738205-04 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 17:30 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2294767	1	06/14/24 16:37	06/14/24 16:37	JDG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2294791	1	06/05/24 07:22	06/05/24 07:22	JD	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293656	1	05/27/24 13:20	05/27/24 13:20	ASH	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292150	1	05/28/24 05:10	05/29/24 12:45	DJS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292933	1	05/28/24 15:23	05/29/24 12:09	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292455	1	05/25/24 02:57	05/25/24 02:57	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	20	05/23/24 16:22	05/23/24 16:22	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293586	1	05/29/24 18:35	05/31/24 02:28	MAA	Mt. Juliet, TN

01MW93_051624 L1738205-05 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 20:15 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2290720	1	05/22/24 07:10	05/22/24 07:10	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9060A	WG2293860	1	05/30/24 12:34	05/30/24 12:34	SJF	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292165	1	05/24/24 10:49	05/25/24 12:48	JTM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2292912	1	05/29/24 00:01	05/29/24 10:45	DJS	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

01MW93_051624 L1738205-05 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 20:15 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292455	1	05/25/24 03:19	05/25/24 03:19	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292855	10	05/23/24 16:42	05/23/24 16:42	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292874	25	05/25/24 00:25	05/25/24 00:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293173	1	05/25/24 10:35	05/25/24 23:50	KAP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293173	1	05/25/24 10:35	05/28/24 09:33	DMG	Mt. Juliet, TN

FD_051624 L1738205-06 GW

Collected by: Carlin Wong | Collected date/time: 05/16/24 00:00 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2292720	1	05/24/24 20:40	05/24/24 20:40	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 15:43	05/23/24 15:43	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292875	10	05/27/24 17:02	05/27/24 17:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2293586	1	05/29/24 18:35	05/31/24 02:48	MAA	Mt. Juliet, TN

TRIP BLANK L1738205-07 GW

Collected by: Carlin Wong | Collected date/time: 05/17/24 00:00 | Received date/time: 05/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2291812	1	05/23/24 16:03	05/23/24 16:03	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2292875	1	05/27/24 16:42	05/27/24 16:42	DWR	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Andi R Jones
Project Manager

Report Revision History

Level II Report - Version 1: 06/17/24 17:02
Level II Report - Version 2: 06/18/24 16:51

Project Narrative

Qualifier Q was added to sulfate on sample L1738205-04.

Sample Delivery Group (SDG) Narrative

Analysis was filtered in the laboratory.

Lab Sample ID	Project Sample ID	Method
L1738205-01	01MW95_051724	6010D
L1738205-02	MW-BN-01_051724	6010D
L1738205-03	MW-BN-02_051724	6010D
L1738205-04	01MW98_051624	6010D
L1738205-05	01MW93_051624	6010D
R4074796-3		6010D

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	11200		379	1000	1	06/05/2024 06:42	WG2294791
Sulfate	93000		594	5000	1	06/05/2024 06:42	WG2294791

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	4860		102	1000	1	05/27/2024 12:01	WG2293656

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	2800		18.0	100	1	05/29/2024 12:01	WG2292933
Iron,Dissolved	32.9	J	18.0	100	1	05/29/2024 12:35	WG2292150
Manganese	1100		0.934	10.0	1	05/29/2024 12:01	WG2292933
Manganese,Dissolved	1070		0.934	10.0	1	05/29/2024 12:35	WG2292150

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 14:47	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 14:47	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 14:47	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 14:47	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 14:47	WG2291812
Trichloroethene	U		0.0160	0.0400	1	05/23/2024 14:47	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 14:47	WG2291812
(S) Toluene-d8	*106*			*75.0-131*		*05/23/2024 14:47*	WG2291812
(S) 4-Bromofluorobenzene	*99.3*			*67.0-138*		*05/23/2024 14:47*	WG2291812
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*		*05/23/2024 14:47*	WG2291812

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	2980		379	1000	1	06/05/2024 06:55	WG2294791
Sulfate	5900		594	5000	1	06/05/2024 06:55	WG2294791

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	13200		102	1000	1	05/27/2024 12:22	WG2293656

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	794		18.0	100	1	05/29/2024 12:03	WG2292933
Iron,Dissolved	316		18.0	100	1	05/29/2024 12:39	WG2292150
Manganese	967		0.934	10.0	1	05/29/2024 12:03	WG2292933
Manganese,Dissolved	644		0.934	10.0	1	05/29/2024 12:39	WG2292150

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	57.0	B J	31.6	100	1	05/25/2024 02:14	WG2292455
(S) a,a,a-Trifluorotoluene(FID)	*104*			*78.0-120*		*05/25/2024 02:14*	WG2292455

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 15:06	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 15:06	WG2291812
cis-1,2-Dichloroethene	1.21		0.0276	0.100	1	05/23/2024 15:06	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 15:06	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 15:06	WG2291812
Trichloroethene	13.8		0.0160	0.0400	1	05/23/2024 15:06	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 15:06	WG2291812
(S) Toluene-d8	*110*			*75.0-131*		*05/23/2024 15:06*	WG2291812
(S) 4-Bromofluorobenzene	*94.9*			*67.0-138*		*05/23/2024 15:06*	WG2291812
(S) 1,2-Dichloroethane-d4	*97.2*			*70.0-130*		*05/23/2024 15:06*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	1760		66.7	200	1	05/31/2024 00:44	WG2293586
Residual Range Organics (RRO)	1950		83.3	250	1	05/31/2024 00:44	WG2293586
(S) o-Terphenyl	*141*			*52.0-156*		*05/31/2024 00:44*	WG2293586

Sample Narrative:

L1738205-02 WG2293586: Sample resembles laboratory standards for Hydraulic Fluid and Hydraulic oil.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	10600		379	1000	1	06/05/2024 07:09	WG2294791
Sulfate	12000		594	5000	1	06/05/2024 07:09	WG2294791

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	2110		102	1000	1	05/27/2024 12:42	WG2293656

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	173		18.0	100	1	05/29/2024 12:08	WG2292933
Iron,Dissolved	U		18.0	100	1	05/29/2024 12:42	WG2292150
Manganese	148		0.934	10.0	1	05/31/2024 09:34	WG2295274
Manganese,Dissolved	87.4		0.934	10.0	1	05/29/2024 12:42	WG2292150

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	31.9	B J	31.6	100	1	05/25/2024 02:36	WG2292455
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*		*05/25/2024 02:36*	WG2292455

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 15:25	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 15:25	WG2291812
cis-1,2-Dichloroethene	U		0.0276	0.100	1	05/23/2024 15:25	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 15:25	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 15:25	WG2291812
Trichloroethene	U		0.0160	0.0400	1	05/23/2024 15:25	WG2291812
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 15:25	WG2291812
(S) Toluene-d8	*110*			*75.0-131*		*05/23/2024 15:25*	WG2291812
(S) 4-Bromofluorobenzene	*91.7*			*67.0-138*		*05/23/2024 15:25*	WG2291812
(S) 1,2-Dichloroethane-d4	*97.4*			*70.0-130*		*05/23/2024 15:25*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	127	J	66.7	200	1	05/31/2024 02:08	WG2293586
Residual Range Organics (RRO)	131	J	83.3	250	1	05/31/2024 02:08	WG2293586
(S) o-Terphenyl	*118*			*52.0-156*		*05/31/2024 02:08*	WG2293586

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	3120		379	1000	1	06/05/2024 07:22	WG2294791
Sulfate	14500	Q	594	5000	1	06/14/2024 16:37	WG2294767

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	10600		102	1000	1	05/27/2024 13:20	WG2293656

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	262		18.0	100	1	05/29/2024 12:09	WG2292933
Iron,Dissolved	U		18.0	100	1	05/29/2024 12:45	WG2292150
Manganese	315		0.934	10.0	1	05/29/2024 12:09	WG2292933
Manganese,Dissolved	209		0.934	10.0	1	05/29/2024 12:45	WG2292150

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	147	B	31.6	100	1	05/25/2024 02:57	WG2292455
(S) a,a,a-Trifluorotoluene(FID)	*100*			*78.0-120*		*05/25/2024 02:57*	WG2292455

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.380	2.00	20	05/23/2024 16:22	WG2291812
1,1-Dichloroethene	0.460	J	0.400	2.00	20	05/23/2024 16:22	WG2291812
cis-1,2-Dichloroethene	68.2		0.552	2.00	20	05/23/2024 16:22	WG2291812
trans-1,2-Dichloroethene	2.04	J	1.14	4.00	20	05/23/2024 16:22	WG2291812
Tetrachloroethene	U		0.560	2.00	20	05/23/2024 16:22	WG2291812
Trichloroethene	339		0.320	0.800	20	05/23/2024 16:22	WG2291812
Vinyl chloride	U		0.546	2.00	20	05/23/2024 16:22	WG2291812
(S) Toluene-d8	*109*			*75.0-131*		*05/23/2024 16:22*	WG2291812
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*05/23/2024 16:22*	WG2291812
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*05/23/2024 16:22*	WG2291812

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	2560		66.7	200	1	05/31/2024 02:28	WG2293586
Residual Range Organics (RRO)	1890		83.3	250	1	05/31/2024 02:28	WG2293586
(S) o-Terphenyl	*133*			*52.0-156*		*05/31/2024 02:28*	WG2293586

Sample Narrative:

L1738205-04 WG2293586: Sample resembles laboratory standards for Hydraulic Fluid and Hydraulic oil.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8950		379	1000	1	05/22/2024 07:10	WG2290720
Sulfate	20100		594	5000	1	05/22/2024 07:10	WG2290720

Wet Chemistry by Method 9060A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TOC (Total Organic Carbon)	7150		102	1000	1	05/30/2024 12:34	WG2293860

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Iron	153		18.0	100	1	05/25/2024 12:48	WG2292165
Iron,Dissolved	U		18.0	100	1	05/29/2024 10:45	WG2292912
Manganese	1190		0.934	10.0	1	05/25/2024 12:48	WG2292165
Manganese,Dissolved	1230		0.934	10.0	1	05/29/2024 10:45	WG2292912

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	418		31.6	100	1	05/25/2024 03:19	WG2292455
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*		*05/25/2024 03:19*	WG2292455

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,2-Dichloroethane	U		0.819	10.0	10	05/23/2024 16:42	WG2292855
1,1-Dichloroethene	3.39	J	1.88	10.0	10	05/23/2024 16:42	WG2292855
cis-1,2-Dichloroethene	76.6		1.26	10.0	10	05/23/2024 16:42	WG2292855
trans-1,2-Dichloroethene	13.8		1.49	10.0	10	05/23/2024 16:42	WG2292855
Tetrachloroethene	U		3.00	10.0	10	05/23/2024 16:42	WG2292855
Trichloroethene	1180		4.75	25.0	25	05/25/2024 00:25	WG2292874
Vinyl chloride	U		2.34	10.0	10	05/23/2024 16:42	WG2292855
(S) Toluene-d8	*108*			*80.0-120*		*05/23/2024 16:42*	WG2292855
(S) Toluene-d8	*111*			*80.0-120*		*05/25/2024 00:25*	WG2292874
(S) 4-Bromofluorobenzene	*95.8*			*77.0-126*		*05/23/2024 16:42*	WG2292855
(S) 4-Bromofluorobenzene	*111*			*77.0-126*		*05/25/2024 00:25*	WG2292874
(S) 1,2-Dichloroethane-d4	*99.1*			*70.0-130*		*05/23/2024 16:42*	WG2292855
(S) 1,2-Dichloroethane-d4	*92.9*			*70.0-130*		*05/25/2024 00:25*	WG2292874

Sample Narrative:

L1738205-05 WG2292855: Target compound too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	1600		66.7	200	1	05/25/2024 23:50	WG2293173
Residual Range Organics (RRO)	1010		83.3	250	1	05/28/2024 09:33	WG2293173
(S) o-Terphenyl	*139*			*52.0-156*		*05/25/2024 23:50*	WG2293173
(S) o-Terphenyl	*156*			*52.0-156*		*05/28/2024 09:33*	WG2293173

Sample Narrative:

L1738205-05 WG2293173: Sample resembles laboratory standard for Hydraulic Fluid.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	186	B	31.6	100	1	05/24/2024 20:40	WG2292720
(S) a,a,a-Trifluorotoluene(FID)	*96.8*			*78.0-120*		*05/24/2024 20:40*	WG2292720

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 15:43	WG2291812
1,1-Dichloroethene	0.621		0.0200	0.100	1	05/23/2024 15:43	WG2291812
cis-1,2-Dichloroethene	71.5		0.0276	0.100	1	05/23/2024 15:43	WG2291812
trans-1,2-Dichloroethene	1.91		0.0572	0.200	1	05/23/2024 15:43	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 15:43	WG2291812
Trichloroethene	411		0.160	0.400	10	05/27/2024 17:02	WG2292875
Vinyl chloride	0.188		0.0273	0.100	1	05/23/2024 15:43	WG2291812
(S) Toluene-d8	*107*			*75.0-131*		*05/23/2024 15:43*	WG2291812
(S) Toluene-d8	*104*			*75.0-131*		*05/27/2024 17:02*	WG2292875
(S) 4-Bromofluorobenzene	*94.5*			*67.0-138*		*05/23/2024 15:43*	WG2291812
(S) 4-Bromofluorobenzene	*106*			*67.0-138*		*05/27/2024 17:02*	WG2292875
(S) 1,2-Dichloroethane-d4	*99.9*			*70.0-130*		*05/23/2024 15:43*	WG2291812
(S) 1,2-Dichloroethane-d4	*97.1*			*70.0-130*		*05/27/2024 17:02*	WG2292875

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	2510		66.7	200	1	05/31/2024 02:48	WG2293586
Residual Range Organics (RRO)	2050		83.3	250	1	05/31/2024 02:48	WG2293586
(S) o-Terphenyl	*142*			*52.0-156*		*05/31/2024 02:48*	WG2293586

Sample Narrative:

L1738205-06 WG2293586: Sample resembles laboratory standards for Hydraulic Fluid and Hydraulic oil.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0160	0.0400	1	05/23/2024 16:03	WG2291812
1,2-Dichloroethane	U		0.0190	0.100	1	05/23/2024 16:03	WG2291812
1,1-Dichloroethene	U		0.0200	0.100	1	05/23/2024 16:03	WG2291812
cis-1,2-Dichloroethene	0.0360	J	0.0276	0.100	1	05/23/2024 16:03	WG2291812
trans-1,2-Dichloroethene	U		0.0572	0.200	1	05/23/2024 16:03	WG2291812
Ethylbenzene	U		0.0212	0.100	1	05/23/2024 16:03	WG2291812
Tetrachloroethene	U		0.0280	0.100	1	05/23/2024 16:03	WG2291812
Toluene	0.0840	J	0.0500	0.200	1	05/23/2024 16:03	WG2291812
Trichloroethene	0.0250	J	0.0160	0.0400	1	05/27/2024 16:42	WG2292875
Vinyl chloride	U		0.0273	0.100	1	05/23/2024 16:03	WG2291812
Xylenes, Total	U		0.191	0.260	1	05/23/2024 16:03	WG2291812
(S) Toluene-d8	*111*			*75.0-131*		*05/23/2024 16:03*	WG2291812
(S) Toluene-d8	*104*			*75.0-131*		*05/27/2024 16:42*	WG2292875
(S) 4-Bromofluorobenzene	*92.6*			*67.0-138*		*05/23/2024 16:03*	WG2291812
(S) 4-Bromofluorobenzene	*106*			*67.0-138*		*05/27/2024 16:42*	WG2292875
(S) 1,2-Dichloroethane-d4	*98.4*			*70.0-130*		*05/23/2024 16:03*	WG2291812
(S) 1,2-Dichloroethane-d4	*92.6*			*70.0-130*		*05/27/2024 16:42*	WG2292875

Method Blank (MB)

(MB) R4073224-1 05/21/24 10:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		379	1000
Sulfate	U		594	5000

L1737628-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1737628-03 05/22/24 01:40 • (DUP) R4073224-3 05/22/24 01:54

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	22400	22600	1	1.08		15
Sulfate	34400	34500	1	0.183		15

L1738101-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1738101-04 05/22/24 05:20 • (DUP) R4073224-6 05/22/24 05:34

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	138000	154000	1	10.6		15
Sulfate	62300	69900	1	11.4		15

Laboratory Control Sample (LCS)

(LCS) R4073224-2 05/21/24 10:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	38600	96.5	80.0-120	
Sulfate	40000	37900	94.7	80.0-120	

L1737628-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737628-03 05/22/24 01:40 • (MS) R4073224-4 05/22/24 02:08 • (MSD) R4073224-5 05/22/24 02:22

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	22400	58600	58200	90.5	89.6	1	80.0-120			0.586	15
Sulfate	40000	34400	68700	68200	85.7	84.4	1	80.0-120			0.730	15

L1738101-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1738101-04 05/22/24 05:20 • (MS) R4073224-7 05/22/24 05:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	138000	150000	28.6	1	80.0-120	J6
Sulfate	40000	62300	89300	67.4	1	80.0-120	J6

Sample Narrative:

MS: CL/SO4 spike failed due to sample matrix

Method Blank (MB)

(MB) R4082081-1 06/14/24 08:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Sulfate	U		594	5000

L1737936-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1737936-05 06/14/24 12:38 • (DUP) R4082081-3 06/14/24 12:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	41200	41100	1	0.145		15

L1738212-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1738212-04 06/14/24 18:05 • (DUP) R4082081-5 06/14/24 18:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	7380	7260	1	1.59		15

Laboratory Control Sample (LCS)

(LCS) R4082081-2 06/14/24 08:39

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Sulfate	40000	39000	97.5	80.0-120	

L1737936-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1737936-05 06/14/24 12:38 • (MS) R4082081-4 06/14/24 13:10

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Sulfate	40000	41200	73100	79.6	1	80.0-120	J6

Sample Narrative:

MS: Spike failure due to matrix interference

L1738212-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738212-04 06/14/24 18:05 • (MS) R4082081-6 06/14/24 18:36 • (MSD) R4082081-7 06/14/24 18:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	40000	7380	45000	45300	94.1	94.7	1	80.0-120			0.508	15

Method Blank (MB)

(MB) R4080098-1 06/04/24 23:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		379	1000
Sulfate	U		594	5000

L1738133-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1738133-02 06/05/24 04:14 • (DUP) R4080098-3 06/05/24 04:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1450	1350	1	6.94		15
Sulfate	5720	5740	1	0.284		15

L1738453-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1738453-01 06/05/24 08:02 • (DUP) R4080098-5 06/05/24 08:16

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	35800	40900	10	13.2		15

Sample Narrative:

OS: dilution due to high SO4

Laboratory Control Sample (LCS)

(LCS) R4080098-2 06/04/24 23:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40000	39700	99.1	80.0-120	
Sulfate	40000	40200	100	80.0-120	

L1738133-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1738133-02 06/05/24 04:14 • (MS) R4080098-4 06/05/24 04:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	1450	41200	99.3	1	80.0-120	
Sulfate	40000	5720	45300	98.8	1	80.0-120	

L1738453-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738453-01 06/05/24 08:02 • (MS) R4080098-6 06/05/24 08:29 • (MSD) R4080098-7 06/05/24 08:42

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	35800	75400	74600	98.8	96.8	10	80.0-120			1.08	15

Sample Narrative:

OS: dilution due to high SO4

Method Blank (MB)

(MB) R4074326-2 05/27/24 01:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TOC (Total Organic Carbon)	177	J	102	1000

L1737936-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1737936-15 05/27/24 03:04 • (DUP) R4074326-3 05/27/24 03:21

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	2030	2050	1	0.833		20

L1738205-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1738205-03 05/27/24 12:42 • (DUP) R4074326-6 05/27/24 12:59

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	2110	2240	1	5.94		20

Laboratory Control Sample (LCS)

(LCS) R4074326-1 05/27/24 01:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	25000	25500	102	85.0-115	

L1737936-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1737936-16 05/27/24 03:39 • (MS) R4074326-4 05/27/24 04:00 • (MSD) R4074326-5 05/27/24 04:21

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	274	25100	25300	99.4	100	1	85.0-115			0.714	20

L1738205-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738205-04 05/27/24 13:20 • (MS) R4074326-7 05/27/24 13:42 • (MSD) R4074326-8 05/27/24 14:03

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	10600	36200	37000	102	106	1	85.0-115			2.13	20

Method Blank (MB)

(MB) R4075609-2 05/30/24 11:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TOC (Total Organic Carbon)	U		102	1000

L1738212-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1738212-19 05/30/24 16:37 • (DUP) R4075609-5 05/30/24 17:02

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	3660	3770	1	2.88		20

L1738583-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1738583-08 05/30/24 18:13 • (DUP) R4075609-6 05/30/24 18:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	2540	1050	1	83.4	P1	20

Laboratory Control Sample (LCS)

(LCS) R4075609-1 05/30/24 10:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	25000	25100	100	85.0-115	

L1738212-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738212-04 05/30/24 13:47 • (MS) R4075609-3 05/30/24 14:15 • (MSD) R4075609-4 05/30/24 14:43

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	922	25600	25600	98.8	98.7	1	85.0-115			0.117	20

L1738594-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738594-02 05/30/24 18:50 • (MS) R4075609-7 05/30/24 19:17 • (MSD) R4075609-8 05/30/24 19:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	25000	U	24200	24000	96.9	96.1	1	85.0-115			0.829	20

Method Blank (MB)

(MB) R4074796-1 05/28/24 16:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron,Dissolved	U		18.0	100
Manganese,Dissolved	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4074796-2 05/28/24 16:43

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron,Dissolved	10000	9970	99.7	80.0-120	
Manganese,Dissolved	1000	1010	101	80.0-120	

L1738212-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738212-04 05/28/24 16:45 • (MS) R4074796-4 05/28/24 16:48 • (MSD) R4074796-5 05/28/24 16:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	U	9980	9780	99.8	97.8	1	75.0-125			2.05	20
Manganese,Dissolved	1000	1570	2610	2530	104	96.6	1	75.0-125			2.87	20

Method Blank (MB)

(MB) R4073808-1 05/24/24 14:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Iron	U		18.0	100
Manganese	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4073808-2 05/24/24 14:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Iron	10000	10300	103	80.0-120	
Manganese	1000	1050	105	80.0-120	

L1736060-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1736060-07 05/24/24 14:32 • (MS) R4073808-4 05/24/24 14:35 • (MSD) R4073808-5 05/24/24 14:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Iron	10000	7180	18000	18900	109	117	1	75.0-125			4.67	20
Manganese	1000	2350	3300	3340	95.1	99.0	1	75.0-125			1.17	20

Method Blank (MB)

(MB) R4074997-1 05/29/24 10:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron,Dissolved	U		18.0	100
Manganese,Dissolved	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4074997-2 05/29/24 10:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron,Dissolved	10000	10000	100	80.0-120	
Manganese,Dissolved	1000	1030	103	80.0-120	

L1738583-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738583-01 05/29/24 10:38 • (MS) R4074997-4 05/29/24 10:42 • (MSD) R4074997-5 05/29/24 10:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron,Dissolved	10000	26.7	10100	10200	101	101	1	75.0-125			0.520	20
Manganese,Dissolved	1000	58.0	1090	1090	103	103	1	75.0-125			0.220	20

Method Blank (MB)

(MB) R4074998-1 05/29/24 11:27

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron	U		18.0	100
Manganese	27.8		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4074998-2 05/29/24 11:29

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron	10000	10100	101	80.0-120	
Manganese	1000	1040	104	80.0-120	

L1738203-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738203-03 05/29/24 11:30 • (MS) R4074998-4 05/29/24 11:35 • (MSD) R4074998-5 05/29/24 11:36

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron	10000	U	10200	10100	102	101	1	75.0-125			1.22	20
Manganese	1000	4.55	1050	1040	105	103	1	75.0-125			1.18	20

L1738217-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738217-03 05/29/24 11:38 • (MS) R4074998-6 05/29/24 11:40 • (MSD) R4074998-7 05/29/24 11:41

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron	10000	3720	13800	13800	101	101	1	75.0-125			0.135	20
Manganese	1000	4300	5200	5220	89.9	91.9	1	75.0-125			0.383	20

Method Blank (MB)

(MB) R4075772-1 05/31/24 09:14

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Manganese	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R4075772-2 05/31/24 09:16

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Manganese	1000	1000	100	80.0-120	

L1739385-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1739385-03 05/31/24 09:18 • (MS) R4075772-4 05/31/24 09:21 • (MSD) R4075772-5 05/31/24 09:23

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Manganese	1000	76.1	1050	1050	97.1	97.3	1	75.0-125			0.169	20

Method Blank (MB)

(MB) R4074852-3 05/25/24 01:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	36.3	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*103*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074852-1 05/24/24 22:43 • (LCSD) R4074852-2 05/24/24 23:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	4620	4530	92.4	90.6	70.0-124			1.97	20
(S) a,a,a-Trifluorotoluene(FID)				*96.4*	*95.6*	*78.0-120*				

L1738143-49 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1738143-49 05/25/24 03:40 • (MS) R4074852-4 05/25/24 08:39 • (MSD) R4074852-5 05/25/24 09:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	52.6	4030	4610	79.5	91.1	1	10.0-155			13.4	21
(S) a,a,a-Trifluorotoluene(FID)					*100*	*103*		*78.0-120*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Is
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R4073803-3 05/24/24 11:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	50.8	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*97.4*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4073803-1 05/24/24 09:54 • (LCSD) R4073803-2 05/24/24 10:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5000	4260	4060	85.2	81.2	70.0-124			4.81	20
(S) a,a,a-Trifluorotoluene(FID)				*101*	*102*	*78.0-120*				

Method Blank (MB)

(MB) R4073740-2 05/23/24 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0160	0.0400
1,2-Dichloroethane	U		0.0190	0.100
1,1-Dichloroethene	U		0.0200	0.100
cis-1,2-Dichloroethene	U		0.0276	0.100
trans-1,2-Dichloroethene	U		0.0572	0.200
Ethylbenzene	U		0.0212	0.100
Tetrachloroethene	U		0.0280	0.100
Toluene	U		0.0500	0.200
Trichloroethene	U		0.0160	0.0400
Vinyl chloride	U		0.0273	0.100
Xylenes, Total	U		0.191	0.260
(S) Toluene-d8	*109*			*75.0-131*
(S) 4-Bromofluorobenzene	*92.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R4073740-1 05/23/24 07:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	4.23	84.6	70.0-123	
1,2-Dichloroethane	5.00	4.96	99.2	65.0-131	
1,1-Dichloroethene	5.00	4.24	84.8	65.0-131	
cis-1,2-Dichloroethene	5.00	4.64	92.8	73.0-125	
trans-1,2-Dichloroethene	5.00	4.43	88.6	71.0-125	
Ethylbenzene	5.00	4.53	90.6	74.0-126	
Tetrachloroethene	5.00	4.53	90.6	70.0-136	
Toluene	5.00	4.86	97.2	75.0-121	
Trichloroethene	5.00	4.35	87.0	76.0-126	
Vinyl chloride	5.00	4.18	83.6	63.0-134	
Xylenes, Total	15.0	13.1	87.3	72.0-127	
(S) Toluene-d8			*109*	*75.0-131*	
(S) 4-Bromofluorobenzene			*95.7*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*105*	*70.0-130*	

Method Blank (MB)

(MB) R4073741-2 05/23/24 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
Tetrachloroethene	U		0.300	1.00
Vinyl chloride	U		0.234	1.00
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*92.9*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R4073741-1 05/23/24 07:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2-Dichloroethane	5.00	4.96	99.2	70.0-128	
1,1-Dichloroethene	5.00	4.24	84.8	71.0-124	
cis-1,2-Dichloroethene	5.00	4.64	92.8	73.0-120	
trans-1,2-Dichloroethene	5.00	4.43	88.6	73.0-120	
Tetrachloroethene	5.00	4.53	90.6	72.0-132	
Vinyl chloride	5.00	4.18	83.6	67.0-131	
(S) Toluene-d8			*109*	*80.0-120*	
(S) 4-Bromofluorobenzene			*95.7*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*105*	*70.0-130*	

Method Blank (MB)

(MB) R4074169-3 05/24/24 18:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Trichloroethene	U		0.190	1.00
(S) Toluene-d8	*111*			*80.0-120*
(S) 4-Bromofluorobenzene	*110*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*92.0*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074169-1 05/24/24 17:31 • (LCSD) R4074169-2 05/24/24 17:54

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Trichloroethene	5.00	5.36	4.96	107	99.2	78.0-124			7.75	20
(S) Toluene-d8				*110*	*111*	*80.0-120*				
(S) 4-Bromofluorobenzene				*110*	*110*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*93.5*	*92.7*	*70.0-130*				

Method Blank (MB)

(MB) R4074625-3 05/27/24 15:32

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Trichloroethene	U		0.0160	0.0400
(S) Toluene-d8	*105*			*75.0-131*
(S) 4-Bromofluorobenzene	*105*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*92.0*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074625-1 05/27/24 14:16 • (LCSD) R4074625-2 05/27/24 14:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Trichloroethene	5.00	5.23	5.11	105	102	76.0-126			2.32	20
(S) Toluene-d8				*102*	*102*	*75.0-131*				
(S) 4-Bromofluorobenzene				*106*	*105*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*93.1*	*93.7*	*70.0-130*				

Method Blank (MB)

(MB) R4074229-1 05/25/24 19:27

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*115*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4074229-2 05/25/24 19:48 • (LCSD) R4074229-3 05/25/24 20:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1430	1440	95.3	96.0	50.0-150			0.697	20
(S) o-Terphenyl				*117*	*117*	*52.0-156*				

Method Blank (MB)

(MB) R4075638-1 05/30/24 19:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*133*			*52.0-156*

Method Blank (MB)

(MB) R4076226-1 05/31/24 23:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*72.5*			*52.0-156*

Method Blank (MB)

(MB) R4076459-1 06/02/24 12:25

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*107*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4075638-2 05/30/24 19:42 • (LCSD) R4075638-3 05/30/24 20:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1430	1410	95.3	94.0	50.0-150			1.41	20
(S) o-Terphenyl				*116*	*123*	*52.0-156*				

INTERNAL STANDARD SUMMARY

Instrument: VOCGC1 • File ID: 0524_29

05/24/24 22:21

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0524_29	1693346	840893
Upper Limit		3386692	1681786
Lower Limit		846673	420447
LCS R4074852-1 WG2292455 1x	0524_30	1737497	872151
LCSD R4074852-2 WG2292455 1x	0524_31	1778938	888818
BLANK R4074852-3 WG2292455 1x	0524_33	1418224	851168
L1738205-02 WG2292455 1x	0524_36	1377613	807251
L1738205-03 WG2292455 1x	0524_37	1757889	1032920
L1738205-04 WG2292455 1x	0524_38	1698732	995819
L1738205-05 WG2292455 1x	0524_39	1559888	920500
MS R4074852-4 WG2292455 1x	0524_54	1920795	946549
MSD R4074852-5 WG2292455 1x	0524_55	1729157	847262

Instrument: VOCGC10 • File ID: 0524_03

05/24/24 09:54

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0524_03	205046300	3153547000
Upper Limit		410092600	6307094000
Lower Limit		102523200	1576774000
LCS R4073803-1 WG2292720 1x	0524_03U	205046300	3153547000
LCSD R4073803-2 WG2292720 1x	0524_04	219315600	3195937000
BLANK R4073803-3 WG2292720 1x	0524_06	232072100	3559271000

Instrument: VOCGC10 • File ID: 0524_26

05/24/24 19:15

Sample ID	File ID	FLUOROBENZENE (FID) Response	FLUOROBENZENE (PID) Response
Standard	0524_26	244408900	3546391000
Upper Limit		410092600	6307094000
Lower Limit		102523200	1576774000
L1738205-06 WG2292720 1x	0524_29	254079800	3837810000

INTERNAL STANDARD SUMMARY

Instrument: VOCMS30 • File ID: 0524a_02-1

05/24/24 17:31

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0524a_02-1	273507	128957	139719
Upper Limit		547014	257914	279438
Lower Limit		136754	64479	69860
LCS R4074169-1 WG2292874 1x	0524a_02LCSC	273507	128957	139719
LCSD R4074169-2 WG2292874 1x	0524a_03C	268993	124856	137807
BLANK R4074169-3 WG2292874 1x	0524a_05C	253524	116489	127191
L1738205-05 WG2292874 25x	0524A_19	241028	112587	123804

Instrument: VOCMS53 • File ID: 0523_03

05/23/24 07:45

Sample ID	File ID	8260-FLUOROBENZENE	8260-CHLOROBENZENE-D5	8260-1,4-DICHLOROBENZENE-D4
		Response	Response	Response
Standard	0523_03	843786.50	352474	256853.10
Upper Limit		1687573	704948	513706
Lower Limit		421893	176237	128427
LCS R4073740-1 WG2291812 1x	0523_03LCSA	843786.50	352474	256853.10
LCS R4073741-1 WG2292855 1x	0523_03LCSB	843786.50	352474	256853.10
BLANK R4073740-2 WG2291812 1x	0523_06A	837579.90	339527.70	240118.90
BLANK R4073741-2 WG2292855 1x	0523_06B	837579.90	339527.70	240118.90
L1738205-01 WG2291812 1x	0523_25	730821.40	307626.40	265220.20
L1738205-02 WG2291812 1x	0523_26	744330.20	298408	229462.70
L1738205-03 WG2291812 1x	0523_27	745707.90	295125.10	209398.30
L1738205-06 WG2291812 1x	0523_28	725435	283837.80	218287.40
L1738205-07 WG2291812 1x	0523_29	726019.60	291503.60	212666.20
L1738205-04 WG2291812 20x	0523_30	741034.70	293900.50	244300.90
L1738205-05 WG2292855 10x	0523_31	725545.40	285315.50	213266.20

INTERNAL STANDARD SUMMARY

Instrument: VOCMS58 • File ID: 0527_02-1

05/27/24 14:16

Sample ID	File ID	8260-FLUOROBENZENE Response	8260-CHLOROBENZENE-D5 Response	8260-1,4-DICHLOROBENZENE-D4 Response
Standard	0527_02-1	1419813	626513.30	661936.70
Upper Limit		2839626	1253027	1323873
Lower Limit		709907	313257	330968
LCS R4074625-1 WG2292875 1x	0527_02LCSB	1419813	626513.30	661936.70
LCSD R4074625-2 WG2292875 1x	0527_03B	1401828	622026.20	647697.50
BLANK R4074625-3 WG2292875 1x	0527_06B	1375876	592476.80	616895.30
L1738205-07 WG2292875 1x	0527_08	1391841	589494.10	637372.50
L1738205-06 WG2292875 10x	0527_09	1320831	596695	630255.60

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address: Arcadis - BNSF Region 2, 1420 5th Ave, Suite 2400, Seattle, WA 98101

Billing Information: Accounts Payable, 1420 5th Ave, Suite 2400, Seattle, WA 98101

Pres Chk

Report to: Kyle Haslam

Email To: kyle.haslam@arcadis.com, emily.zikmund@arcadis.com

Project Description: BNSF Time Oil Bulk Terminal

City/State Collected: Seattle, WA

Please Circle: (PT) MT CT ET

Phone: 206-726-4753

Client Project #: 30195976

Lab Project #: BNSF2ARCA-TimeOil

Collected by (print): Carlin Wong

Site/Facility ID #: BNSF Time Oil

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)

___ Same Day ___ Five Day Cul 5/17/24

___ Next Day ~~___ 5 Day (Rad Only)~~

___ Two Day ___ 10 Day (Rad Only)

~~8260 only~~

Quote #

Date Results Needed: STD TAT

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	NWTPH-Dx NoSGT 40mL Amb BT	NWTPH-Gx 40 mL Amb HCl	CVOC 8260 40mL Amb HCl	BTEX 8260 40 mL Amb HCl	TOC 250 mL Amb H2SO4	Total Metals-FE,MN 250 mL HDPE HNO3	Dissolved Metals-FE,MN 250 mL HDPE NoPres	Chloride, Sulfate 125 mL HDPE NoPres	8270 PCP 100 mL Amb NoPres	Remarks	Sample # (lab only)
01MW95_051724	G	GW	—	5/17/24	1015	10			X		X	X	X	X			-01
MW-BN-01_051724	G	GW	—	5/17/24	1100	15	X	X	X		X	X	X	X			-02
MW-BN-02_051724	G	GW	—	5/17/24	0830	15	X	X	X		X	X	X	X			-03
01MW98_051624	G	GW	—	5/16/24	1730	15	X	X	X		X	X	X	X			-04
01MW93_051624	G	GW	—	5/16/24	2015	12	X	X	X		X	X	X	X			-05
FD_051624	G	GW	—	5/16/24	—	11	X	X	X								-06
TRIP BLANK	—	GW	—	—	—	2			X	X							-07

Chain of Custody Page 1 of 1

Pace — PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122

Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1738205

C057

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier __ _____

Tracking # 7123 3304 5627

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	5/17/24	1530		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: EDA6 °C Bottles Received:	
				.4+.1=.5 78	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
			Alexa Mitchell	5/18/24 0900	