



TRANSMITTAL

Project No.: 130046

June 2, 2023

<p>Attn: Thomas Middleton, Washington State Department of Ecology</p> <p>Sophia Petro, Washington State Department of Health</p> <p>David Wayne Johnson, Jefferson County Department of Community Development</p>	<p>Re: Olympic Water and Sewer, Inc. Year 4 (2023) Groundwater Results</p>
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We are sending the following via:

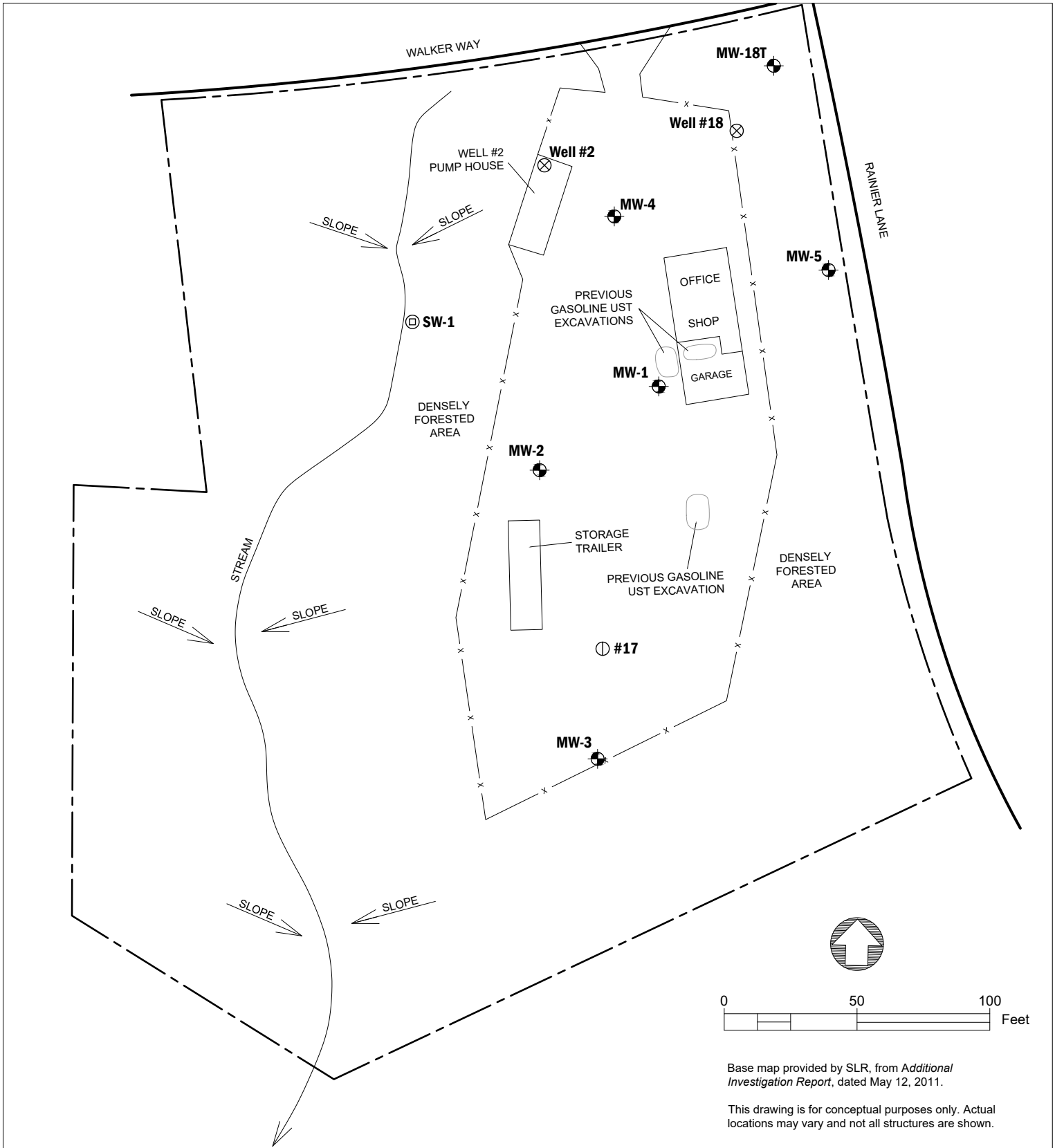
- Regular Mail E-Mail Hand Deliver
 Overnight Delivery Courier Client Pickup

Qty	Description
1	Figure 1 – Site Plan
1	Table 1 – Groundwater Analytical Results
1	Attachment 1 – Laboratory Analytical Report

Remarks: The Year 4 (2023) groundwater monitoring results for water supply wells Well #2 and Well #18 are tabulated in Table 1. Toluene was detected above the laboratory detection limit but below the MTCA Method A cleanup level in the sample collected from Well #18. Constituents were not detected above the laboratory detection limits in the sample collected from Well #2. The locations of the wells are shown on Figure 1.

<p>cc: Sarah Steffan, Raydient</p> <p>Susan Porto, Jefferson County Department of Public Health</p> <p>Emma Erickson, Jefferson County Department of Public Health</p> <p>Michael Dawson, Jefferson County Department of Public Health</p>	<p>Sent by: Eric Maise, PE</p> <p>Project Engineer emaise@aspectconsulting.com</p>
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V:\130046 OPG Port Ludlow Property\Deliverables\Data Transmittals\Year 4 Transmittal\Year 4 (2023) Data Transmittal.docx



Base map provided by SLR, from *Additional Investigation Report*, dated May 12, 2011.

This drawing is for conceptual purposes only. Actual locations may vary and not all structures are shown.

Legend

- Monitoring Well Location
- Stream Sample Location
- Water Supply Well Location
- Existing Casing Location

Site Plan
 Year 4 Annual Groundwater Monitoring Report
 Olympic Water & Sewer, Inc.
 Port Ludlow, Washington



Jul-2022
 PROJECT NO.
 130046

BY:
 DWU/SCC
 REVISED BY:
 SCC

FIGURE NO.
1

Table 1. Groundwater Analytical Results

Project No. 130046, Olympic Water Sewer, Inc., Port Ludlow, Washington

Location				Well #2	Well #18
Date				5/10/2022	5/12/2022
Sample				Well 2-230510	Well 18-230512
Analyte	Fraction	Unit	MTCA Method A Cleanup Level		
TPHs					
Gasoline-Range Organics		ug/L	800 1000	< 100 U	< 100 U
BTEX					
Benzene	T	ug/L	5	< 1 U	< 1 U
Toluene	T	ug/L	1000	< 1 U	32
Ethylbenzene	T	ug/L	700	< 1 U	< 1 U
Total Xylenes	T	ug/L	1000	< 3 U	< 3 U

Notes:

Bold - detected

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

D - Dissolved Fraction (filtered) sample result

T - Total Fraction (unfiltered) sample result

Gasoline Range Hydrocarbons are screened against a tighter value when benzene is present in the sample.

"--" - indicates results not available

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 19, 2023

Eric Maise, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Maise:

Included are the results from the testing of material submitted on May 11, 2023 from the OWSI 130046, F&BI 305184 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0519R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 11, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC OWSI 130046, F&BI 305184 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
305184 -01	MW-4-230509
305184 -02	MW-3-230509
305184 -03	MW-5-230509
305184 -04	SW-1-230509
305184 -05	MW-18T-230509
305184 -06	MW-1-230510
305184 -07	MW-2-230510
305184 -08	MW-X-230510
305184 -09	Well 2-230510
305184 -10	Trip Blank
305184 -11	Equipment-230510

Samples MW-4-230509, MW-3-230509, MW-5-230509, MW-18T-230509, MW-1-230510, and MW-2-230510 were sent to Fremont Analytical for alkalinity, nitrate+nitrite, sulfate and dissolved methane analyses. The report is enclosed.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23
 Date Received: 05/11/23
 Project: OWSI 130046, F&BI 305184
 Date Extracted: 05/11/23
 Date Analyzed: 05/12/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR BENZENE, TOLUENE, ETHYLBENZENE,
 XYLENES AND TPH AS GASOLINE
 USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
MW-4-230509 305184-01	<1	<1	<1	<3	<100	112
MW-3-230509 305184-02	<1	<1	<1	<3	<100	110
MW-5-230509 305184-03	<1	<1	<1	<3	<100	112
SW-1-230509 305184-04	<1	<1	<1	<3	<100	108
MW-18T-230509 305184-05	<1	<1	<1	<3	<100	112
MW-1-230510 305184-06 1/10	140	46	270	44	4,100	117
MW-2-230510 305184-07 1/10	61	23	120	<30	1,800	112
MW-X-230510 305184-08 1/10	130	43	250	40	3,800	111
Well 2-230510 305184-09	<1	<1	<1	<3	<100	111
Trip Blank 305184-10	<1	<1	<1	<3	<100	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23
Date Received: 05/11/23
Project: OWSI 130046, F&BI 305184
Date Extracted: 05/11/23
Date Analyzed: 05/12/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
Equipment-230510 305184-11	<1	<1	<1	<3	<100	111
Method Blank 03-953 MB	<1	<1	<1	<3	<100	114

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-4-230509	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-01
Date Analyzed:	05/15/23	Data File:	305184-01.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Manganese	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-3-230509	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-02
Date Analyzed:	05/11/23	Data File:	305184-02.072
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	1.27

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-5-230509	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-03
Date Analyzed:	05/11/23	Data File:	305184-03.073
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	1.04

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-18T-230509	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-05
Date Analyzed:	05/11/23	Data File:	305184-05.074
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	3.73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-1-230510	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-06
Date Analyzed:	05/11/23	Data File:	305184-06.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	651

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-2-230510	Client:	Aspect Consulting, LLC
Date Received:	05/11/23	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	305184-07
Date Analyzed:	05/11/23	Data File:	305184-07.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Manganese	284
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	OWSI 130046, F&BI 305184
Date Extracted:	05/11/23	Lab ID:	I3-376 mb
Date Analyzed:	05/11/23	Data File:	I3-376 mb.050
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Manganese	<1 k
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23

Date Received: 05/11/23

Project: OWSI 130046, F&BI 305184

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 305137-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	98	70-130
Toluene	ug/L (ppb)	50	98	70-130
Ethylbenzene	ug/L (ppb)	50	110	70-130
Xylenes	ug/L (ppb)	150	100	70-130
Gasoline	ug/L (ppb)	1,000	100	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23

Date Received: 05/11/23

Project: OWSI 130046, F&BI 305184

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 305182-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Manganese	ug/L (ppb)	20	2,580	0 b	0 b	75-125	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Manganese	ug/L (ppb)	20	102	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The analyte is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits due to sample matrix effects.
- j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

305184

SAMPLE CHAIN OF CUSTODY

05/11/23

044/K2

Report To Eric Maize

Company Aspect Consulting

Address _____

City, State, ZIP _____

Phone _____ Email emaise@aspectconsulting.com

SAMPLERS (signature) [Signature]

PROJECT NAME OWS1

130046

REMARKS

PO #

INVOICE TO

Project specific RIs? Yes / No

Page # 1 of 2

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

Archive samples

Other _____

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED											Notes								
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Sulfates by EPA 300.0	Nitrate/Nitrite 355.2	dissolved methane per 15	Dissolved Mn		Alkalinity							
MW-4-230509	01 A-E	5/9/23	1406	W	9	XXXXXXXXXXXXXXXXXXXX	X	X																	
MW-3-230509	02		155		9	XXXXXXXXXXXXXXXXXXXX	X	X																	
MW-5-230509	03		1015		9	XXXXXXXXXXXXXXXXXXXX	X	X																	
SU-1-230509	04 A-C		0830		3	XXXXXXXXXXXXXXXXXXXX																			
MW-18T-230509	05 A-E		1530		9	XXXXXXXXXXXXXXXXXXXX																			
MW-1-230510	06	5/10/23	1145		9	XXXXXXXXXXXXXXXXXXXX																			
MW-2-230510	07		1325		9	XXXXXXXXXXXXXXXXXXXX																			
MW-X-230510	08 A-C		1530		3	XXXXXXXXXXXXXXXXXXXX																			
Well #2-230510	09 A-C		0810		3	XXXXXXXXXXXXXXXXXXXX																			
Tap Blank	10 A-B				2	XXXXXXXXXXXXXXXXXXXX																			

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.
Ph. (206) 285-8282

Relinquished by: [Signature]

Carmen Tappero

Aspect Consulting

5/10/23

1500

Received by: [Signature]

Olivia Pina

FEBI

5/11/23

0700

Received by:

Sam. plates received at 200



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 305184
Work Order Number: 2305260

May 18, 2023

Attention Michael Erdahl:

Fremont Analytical, Inc. received 6 sample(s) on 5/11/2023 for the analyses presented in the following report.

Dissolved Gases by RSK-175
Ion Chromatography by EPA Method 300.0
Total Alkalinity by SM 2320B

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brianna Barnes".

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original



CLIENT: Friedman & Bruya
Project: 305184
Work Order: 2305260

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2305260-001	MW-4-230509	05/09/2023 2:00 PM	05/11/2023 5:45 PM
2305260-002	MW-3-230509	05/09/2023 11:55 AM	05/11/2023 5:45 PM
2305260-003	MW-5-230509	05/09/2023 10:15 AM	05/11/2023 5:45 PM
2305260-004	MW-18T-230509	05/09/2023 3:30 PM	05/11/2023 5:45 PM
2305260-005	MW-2-230509	05/10/2023 11:45 AM	05/11/2023 5:45 PM
2305260-006	MW-1-230509	05/10/2023 1:25 PM	05/11/2023 5:45 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Friedman & Bruya

Project: 305184

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- DUP - Sample Duplicate
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MCL - Maximum Contaminant Level
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- REP - Sample Replicate
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



CLIENT: Friedman & Bruya

Project: 305184

Lab ID: 2305260-001

Collection Date: 5/9/2023 2:00:00 PM

Client Sample ID: MW-4-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	ND	0.00675		mg/L	1	5/17/2023 10:45:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	0.402	0.240	D	mg/L	2	5/17/2023 7:21:00 PM
Sulfate	7.07	1.20	D	mg/L	2	5/17/2023 7:21:00 PM

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO ₃)	130	2.50		mg/L	1	5/17/2023 9:26:38 AM
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Lab ID: 2305260-002

Collection Date: 5/9/2023 11:55:00 AM

Client Sample ID: MW-3-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	ND	0.00675		mg/L	1	5/17/2023 10:48:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	1.19	0.240	D	mg/L	2	5/17/2023 8:31:00 PM
Sulfate	17.8	1.20	D	mg/L	2	5/17/2023 8:31:00 PM

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO ₃)	218	2.50		mg/L	1	5/17/2023 9:26:38 AM
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CLIENT: Friedman & Bruya

Project: 305184

Lab ID: 2305260-003

Collection Date: 5/9/2023 10:15:00 AM

Client Sample ID: MW-5-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	ND	0.00675		mg/L	1	5/17/2023 10:51:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	0.424	0.240	D	mg/L	2	5/17/2023 8:54:00 PM
Sulfate	4.41	1.20	D	mg/L	2	5/17/2023 8:54:00 PM

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO3)	127	2.50		mg/L	1	5/17/2023 9:26:38 AM
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Lab ID: 2305260-004

Collection Date: 5/9/2023 3:30:00 PM

Client Sample ID: MW-18T-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	ND	0.00675		mg/L	1	5/17/2023 10:54:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	0.340	0.240	D	mg/L	2	5/17/2023 9:17:00 PM
Sulfate	7.33	1.20	D	mg/L	2	5/17/2023 9:17:00 PM

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO3)	175	2.50		mg/L	1	5/17/2023 9:26:38 AM
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CLIENT: Friedman & Bruya

Project: 305184

Lab ID: 2305260-005

Collection Date: 5/10/2023 11:45:00 AM

Client Sample ID: MW-2-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	ND	0.00675		mg/L	1	5/17/2023 10:57:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	ND	0.120		mg/L	1	5/18/2023 10:14:00 AM
Sulfate	11.3	0.600		mg/L	1	5/18/2023 10:14:00 AM

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO3)	352	2.50		mg/L	1	5/17/2023 9:26:38 AM
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Lab ID: 2305260-006

Collection Date: 5/10/2023 1:25:00 PM

Client Sample ID: MW-1-230509

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Gases by RSK-175

Batch ID: R84049 Analyst: NR

Methane	0.0264	0.00675		mg/L	1	5/17/2023 11:00:00 PM
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Ion Chromatography by EPA Method 300.0

Batch ID: 40395 Analyst: AT

Nitrate (as N)+Nitrite (as N)	ND	0.240	D	mg/L	2	5/17/2023 10:04:00 PM
Sulfate	ND	1.20	D	mg/L	2	5/17/2023 10:04:00 PM

NOTES:

Diluted due to matrix.

Total Alkalinity by SM 2320B

Batch ID: R84043 Analyst: ME

Alkalinity, Total (As CaCO3)	303	2.50		mg/L	1	5/17/2023 9:26:38 AM
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Work Order: 2305260
CLIENT: Friedman & Bruya
Project: 305184

QC SUMMARY REPORT
Total Alkalinity by SM 2320B

Sample ID: MB-R84043	SampType: MBLK	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84043							
Client ID: MBLKW	Batch ID: R84043	Analysis Date: 5/17/2023	SeqNo: 1753056								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	2.50									

Sample ID: LCS-R84043	SampType: LCS	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84043							
Client ID: LCSW	Batch ID: R84043	Analysis Date: 5/17/2023	SeqNo: 1753057								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	117	2.50	100.0	0	117	83.8	121				

Sample ID: 2305274-001ADUP	SampType: DUP	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84043							
Client ID: BATCH	Batch ID: R84043	Analysis Date: 5/17/2023	SeqNo: 1753059								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	60.4	2.50						58.20	3.73	20	

Work Order: 2305260
 CLIENT: Friedman & Bruya
 Project: 305184

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: LCS-40395	SampType: LCS	Units: mg/L			Prep Date: 5/17/2023	RunNo: 84094					
Client ID: LCSW	Batch ID: 40395				Analysis Date: 5/17/2023	SeqNo: 1754075					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	1.49	0.120	1.500	0	99.5	90	110				
Sulfate	3.72	0.600	3.750	0	99.1	90	110				

Sample ID: MB-40395	SampType: MBLK	Units: mg/L			Prep Date: 5/17/2023	RunNo: 84094					
Client ID: MBLKW	Batch ID: 40395				Analysis Date: 5/17/2023	SeqNo: 1754077					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	ND	0.120									
Sulfate	ND	0.600									

Sample ID: 2305260-001ADUP	SampType: DUP	Units: mg/L			Prep Date: 5/17/2023	RunNo: 84094					
Client ID: MW-4-230509	Batch ID: 40395				Analysis Date: 5/17/2023	SeqNo: 1754079					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	0.398	0.240						0.4020	1.00	20	D
Sulfate	7.19	1.20						7.074	1.63	20	D

Sample ID: 2305260-001AMS	SampType: MS	Units: mg/L			Prep Date: 5/17/2023	RunNo: 84094					
Client ID: MW-4-230509	Batch ID: 40395				Analysis Date: 5/17/2023	SeqNo: 1754080					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	3.21	0.240	3.000	0.4020	93.7	80	120				D
Sulfate	14.6	1.20	7.500	7.074	99.8	80	120				D

Sample ID: 2305203-008BDUP	SampType: DUP	Units: mg/L			Prep Date: 5/17/2023	RunNo: 84094					
Client ID: BATCH	Batch ID: 40395				Analysis Date: 5/18/2023	SeqNo: 1754110					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	ND	6.00						0		20	D
Sulfate	ND	30.0						0		20	D

Work Order: 2305260
 CLIENT: Friedman & Bruya
 Project: 305184

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: 2305203-008BDUP	SampType: DUP	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84094							
Client ID: BATCH	Batch ID: 40395	Analysis Date: 5/18/2023	SeqNo: 1754110								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2305203-008BMS	SampType: MS	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84094							
Client ID: BATCH	Batch ID: 40395	Analysis Date: 5/18/2023	SeqNo: 1754111								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	67.1	6.00	75.00	0	89.4	80	120				D
Sulfate	170	30.0	187.5	14.75	83.0	80	120				D

Sample ID: 2305203-008BMSD	SampType: MSD	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84094							
Client ID: BATCH	Batch ID: 40395	Analysis Date: 5/18/2023	SeqNo: 1754112								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)+Nitrite (as N)	67.1	6.00	75.00	0	89.4	80	120	67.05	0	20	D
Sulfate	172	30.0	187.5	14.75	83.9	80	120	170.4	0.993	20	D

Work Order: 2305260
CLIENT: Friedman & Bruya
Project: 305184

QC SUMMARY REPORT
Dissolved Gases by RSK-175

Sample ID: LCS-R84049	SampType: LCS	Units: ppmv	Prep Date: 5/17/2023	RunNo: 84049							
Client ID: LCSW	Batch ID: R84049	Analysis Date: 5/17/2023	SeqNo: 1753146								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	997	0.00675	1,000	0	99.7	73.6	124				

Sample ID: MB-R84049	SampType: MBLK	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84049							
Client ID: MBLKW	Batch ID: R84049	Analysis Date: 5/17/2023	SeqNo: 1753144								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00675									

Sample ID: 2305241-001EREP	SampType: REP	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84049							
Client ID: BATCH	Batch ID: R84049	Analysis Date: 5/17/2023	SeqNo: 1753130								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00675						0		30	

Sample ID: 2305266-002EREP	SampType: REP	Units: mg/L	Prep Date: 5/17/2023	RunNo: 84049							
Client ID: BATCH	Batch ID: R84049	Analysis Date: 5/17/2023	SeqNo: 1753141								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00675						0		30	

Client Name: FB	Work Order Number: 2305260
Logged by: Morgan Wilson	Date Received: 5/11/2023 5:45:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Present
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >2°C to 6°C * Yes No NA
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text" value="Michael Erdahl"/>	Date:	<input type="text" value="5/12/2023"/>
By Whom:	<input type="text" value="Morgan Wilson"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Anions Method 353.2 for N+N. can we switch to 300.0"/>		
Client Instructions:	<input type="text" value="Okav to proceed with EPA 300.0 for N+N"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Sample	1.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

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www.friedmanandbruya.com

May 19, 2023

Eric Maise, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Maise:

Included are the results from the testing of material submitted on May 15, 2023 from the OWSI 130046, F&BI 305241 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0519R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 15, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC OWSI 130046, F&BI 305241 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
305241 -01	Well 18-230512
305241 -02	Trip Blank

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23
Date Received: 05/15/23
Project: OWSI 130046, F&BI 305241
Date Extracted: 05/16/23
Date Analyzed: 05/17/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
Well 18-230512 305241-01	<1	32	<1	<3	<100	110
Trip Blank 305241-02	<1	<1	<1	<3	<100	110
Method Blank 03-961 MB	<1	<1	<1	<3	<100	111

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/23

Date Received: 05/15/23

Project: OWSI 130046, F&BI 305241

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES, AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 305198-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	96	70-130
Toluene	ug/L (ppb)	50	94	70-130
Ethylbenzene	ug/L (ppb)	50	104	70-130
Xylenes	ug/L (ppb)	150	93	70-130
Gasoline	ug/L (ppb)	1,000	100	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The analyte is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits due to sample matrix effects.
- j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

