WHITMAN Environmental Sciences

6812 16th Avenue NE
Seattle, Washington 98115

Phone: (206) 523-3505
Whitenviro@yahoo.com

October 1, 2021

FedEx Freight, Inc.
3405 Victor St.
Santa Clara, CA 95054

Attention: Mr. Chong Lee

Subject: Groundwater Sampling for Total Organic Carbon
Former FedEx Freight, Inc. Seattle Area Terminal
18221 E. Valley Highway
Kent, Washington

Dear Mr. Lee:
As you requested, Whitman Environmental Sciences (WES) has conducted additional sampling at the former FedEx Freight terminal in Kent, Washington (Figure 1). This sampling was to evaluate the presence of non-petroleum organic material in groundwater and supplements our prior quarterly sampling. This summary letter presents background information about the site, documents the sampling procedures and summarizes the laboratory analytical results on four current background samples.

Site Background
The former FedEx Freight terminal in Kent was originally constructed and operated by another trucking company in about 1969. A fueling facility, including underground storage tanks for diesel fuel and gasoline was located near the southern end of the truck shop (Figure 2). Four of the tanks were removed in about 1988 and a release of petroleum to soil and groundwater was discovered at that time. The release was reported to the Washington Department of Ecology. Extensive site investigation and cleanup efforts were conducted from about 1988 to 1998.

In 1988 and 1989 the site was investigated by Groundwater Technology, Inc. (GTI), a consultant for National Warehouse Investment Company, who owned the property and leased it to P.I.E. Trucking. As part of that work, at least ten groundwater monitoring wells were installed, most of which remain in place. Soil boring logs for some of these wells are included in reports prepared by GTI at that time. WES obtained copies of these reports from publicly available files at the Washington Department of Ecology. Appendix A includes copies of the soil boring logs for monitoring wells MW-1 through MW-10 (excepting MW-4, which is missing from our copy of the 1988 report).

All of the available bore logs indicate the presence of organic soils typical of Kent Valley alluvial deposits. The bore logs evidence organic peat deposits ranging from about two to six feel thick, at depths ranging from about five to 12 feet below the ground surface. In monitoring well MW-6 an additional zone of organic clayey soil was noted from a depth of 27 to 30 feet. All of these deposits are at depths that intersect or are below the current level of the shallowest groundwater and would be expected to be sources of non-petroleum organic matter in groundwater.

Periodic sampling of groundwater at the site has included analyses for total petroleum hydrocarbons in the diesel (TPH-D) and motor oil ranges (TPH-O) by Washington accepted method NWTPH-D(extended). The results of most of this testing have been flagged by the laboratory as having chromatograms that do not resemble the laboratory fuel standards used to quantify the results. This typically indicates carry-over from another petroleum range, or the presence of non-petroleum (polar) organic material.

The laboratory method includes the use of a silica gel cleanup to remove polar organic material from the analyzed samples. In over ten years of groundwater monitoring at the facility, analyses have shown that the silica gel cleanup removes most or all of the organic material reported as TPH-D or TPH-O, suggesting it is almost entirely non-petroleum in nature.

To further document the presence of organic matter in groundwater, Mr. Grant Yang of the Washington Department of Ecology requested additional sampling of background groundwater conditions and analysis for total organic carbon.

Current Scope of Work

WES returned to the facility on September 20th, 2021 and obtained samples from four monitoring wells that are removed from the former underground storage tank area and would be considered background groundwater conditions. Monitoring wells MW-3, MW-7, MW-8 and MW-13 were selected for this testing (Figure 2). All four monitoring wells have previously demonstrated TPH-D and/or TPH-O, even though they are not close to the potential on-site sources. In the case of monitoring wells MW-7, MW-8 and MW-13, silica gel cleanup had previously completely removed the reported concentrations down to the laboratory reporting limits, suggesting it was non-petroleum organic matter.

Field Procedures

Groundwater Purging

For this sampling event, WES mobilized to the site and purged each of the selected wells using peristaltic pumps equipped with dedicated polyethylene tubing, removing at least three times the standing water volume in the wells. After purging, the wells were sampled directly from the pump discharge, using laboratory-prepared, preserved bottles appropriate for the anticipated testing. The bottles were chilled and transported to the laboratory under chain-of-custody, following appropriate environmental sampling and handling procedures.

Laboratory Analyses

The samples were submitted to Friedman & Bruya, Inc., a Washington state accredited analytical laboratory. Each sample was analyzed for total organic carbon by standard Method SM 5310C. (Friedman & Bruya do not conduct this test in- house, so these analyses were subcontracted to Fremont Analytical, Inc., another Washington state accredited laboratory.)

The laboratory report of the analytical results is attached in Appendix B. All laboratory quality assurance/quality control criteria were met by the analyses.

Conclusions and Recommendations

In the four samples documented with this report, total organic carbon concentrations ranged from 24.6 to 77.3 mg/l (units equivalent to parts per million (ppm)). The reported results are summarized in Table 1.

Table 1
Summary of Groundwater Sample Analytical Results
Former FedEx Freight Seattle Area Terminal
Kent, Washington

Monitoring Well	*Sample Date*	*Total Organic Carbon Concentration (mg/l)*
MW-3	9/20/2021	24.6
MW-7	9/20/2021	53.9
MW-8	9/20/2021	39.1
MW-13	9/20/2021	77.3

In prior sampling, the highest reported TPH-D result was 1,100 ug/l (a result equivalent to 1.1 mg/l) in a sample from monitoring well MW-10, in June 2015. The reported total organic carbon results are 20 to 70 times the highest TPH-D ever recorded in over ten years of site monitoring.

Based on the soil boring logs that identify organic soils, as well as the current laboratory findings, the current sampling demonstrates the presence of organic material in groundwater at the site. This supports a determination that no further action appears warranted.

Closure
Thank you for the opportunity to be of service to you in this matter. If you have any questions regarding this letter, or if I may be of any further assistance, please feel free to contact me at your convenience.

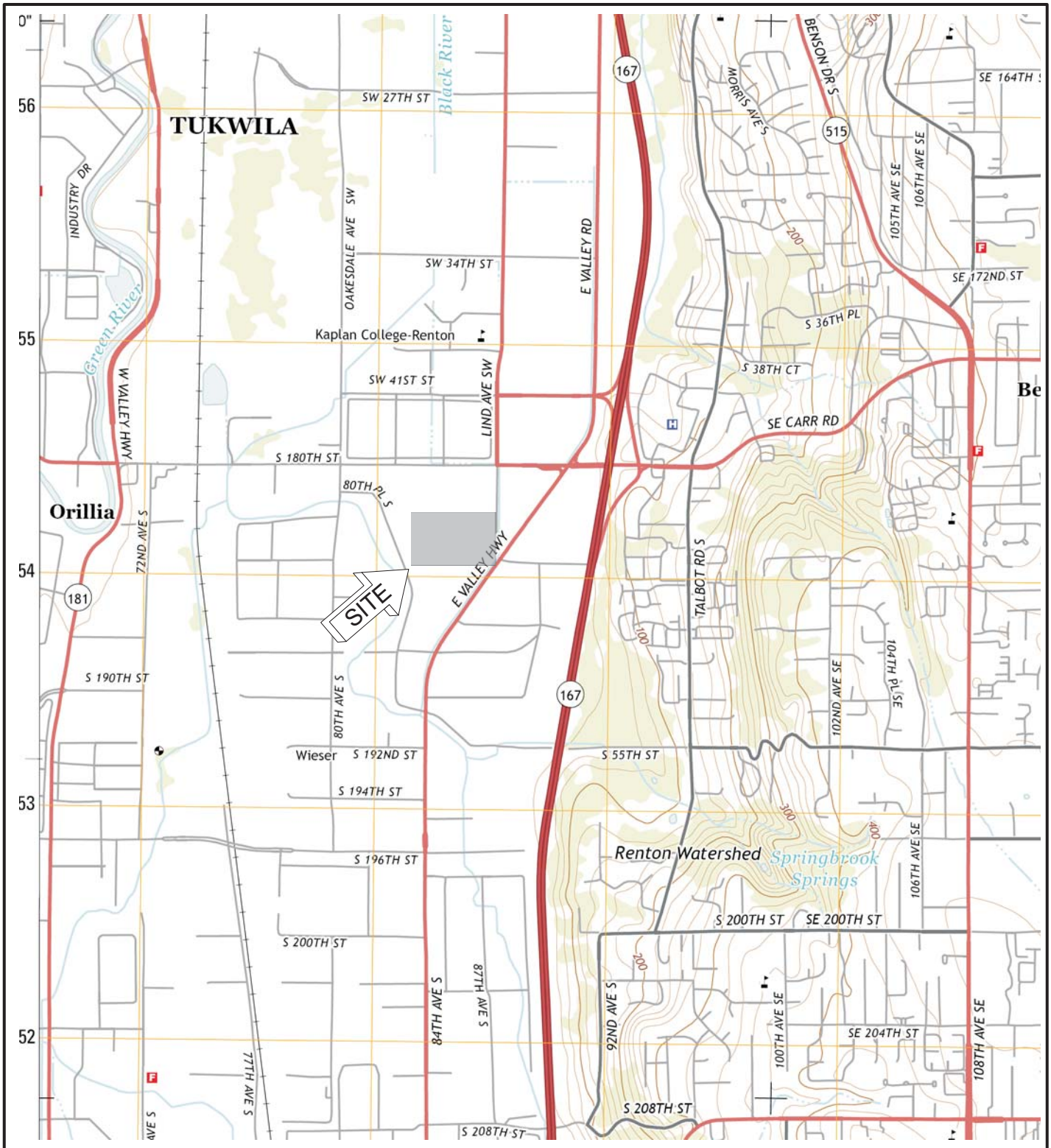
Respectfully submitted,
Whitman Environmental Sciences

Daniel S. Whitman L.G.
Principal

State of Washington
889
Licensed Geologist
DANIEL S WHITMAN

Attachments: Figure 1 - Site Location Map
Figure 2 -Monitoring Well Location Plan

Appendix A - 1988-89 Soil Boring Logs, Groundwater Technology, Inc.
Appendix B - Laboratory Analytical Report - Friedman & Bruya, Inc.



North

0 2000'

Scale 1 : 24,000

From USGS

Figure 1 - Site Map

Former FedEx Freight Terminal
18221 E. Valley Highway
Kent, Washington

Project No.	WES - 1276
Date	Aug 2, 2016
File ID.	1276F1

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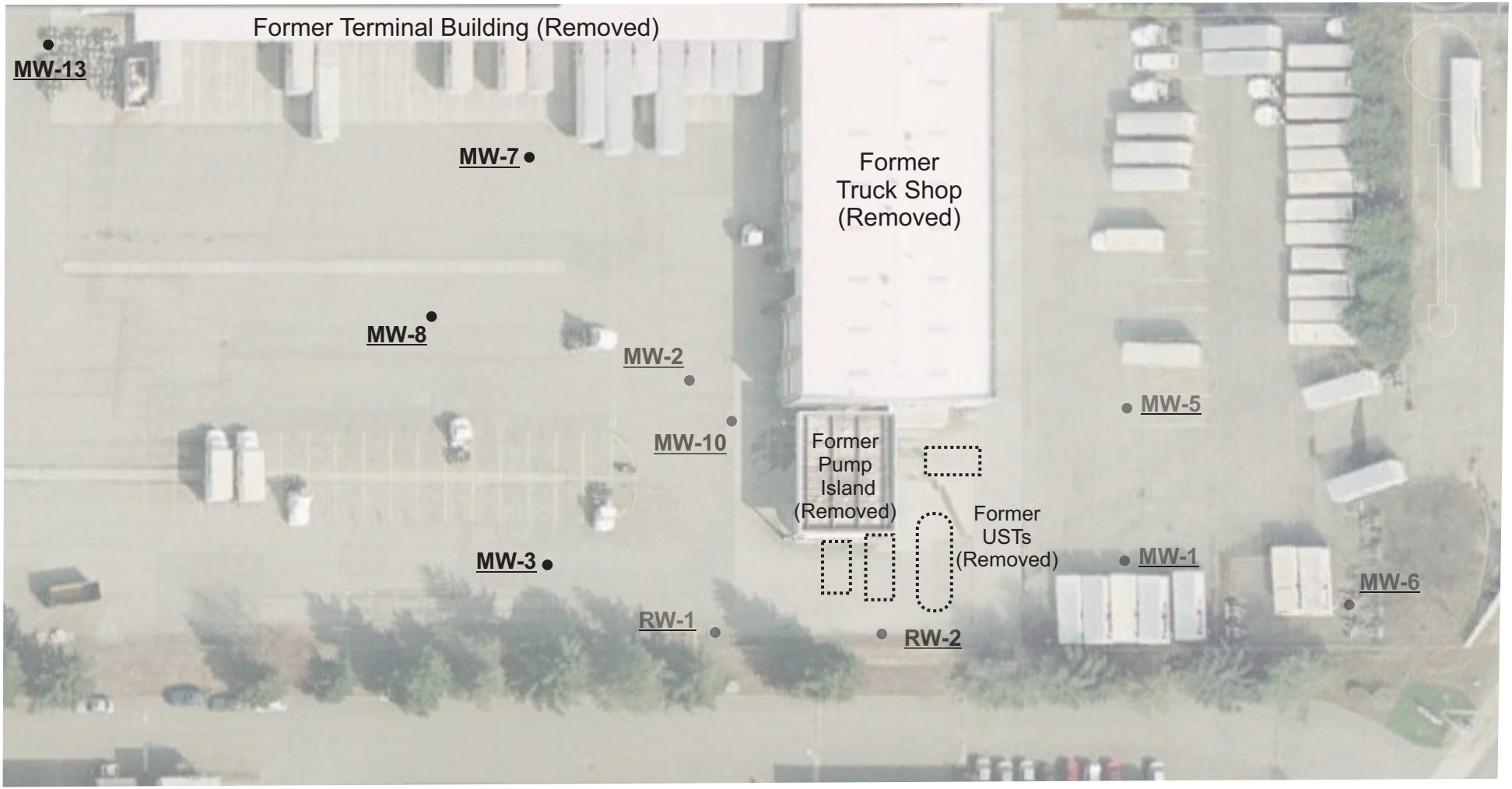

Legend

- Approximate Location of Sampled Monitoring Well
- Approximate Location of Additional Monitoring Wells

North

0 80

Scale 1" = Approx. 80 feet

Figure 2 - Site Plan

Former FedEx Freight, Inc. Kent Terminal
18221 E. Valley Highway
Kent, Washington

Project No.	WES - 1276
Date	Sept 17, 2021
File ID.	1276F2

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APPENDIX A

1988-89 Soil Boring Logs
Groundwater Technology, Inc.

GROUNDWATER TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS
213 South West 41st Street, Bldg. 9B, Renton, Washington 98055, (206) 251-5441

July 28, 1988

Ms. Lynn Cashion
Department of Ecology
Northwest Regional Office
4350 - 150th Avenue Northeast
Redmond, Washington 98052

RE: **P.I.E. Truck Terminal, Kent, Washington**

Dear Ms. Cashion,

Enclosed please find Groundwater Technology Inc.'s Environmental Assessment Report for the P.I.E. Truck Terminal located at 18221 East Valley Highway, Kent, Washington. The report on the tank testing is not included and will be forwarded upon receipt of same. We are anxious to begin any additional phases of assessment and remedial work that may be necessary. Therefore, we would like to meet with you at your earliest convenience to discuss the enclosed report and additional phases of work.

If you have any questions or require any additional information, please contact us.

Sincerely,
Groundwater Technology, Inc.

Mark B. Winters
Project Manager/
Geologist

Mark E. Nichols
Territory Manager/
Hydrogeologist

Enclosure

ENVIRONMENTAL ASSESSMENT REPORT

P.I.E. TRUCK TERMINAL

18221 EAST VALLEY HIGHWAY

KENT, WASHINGTON

JULY 20, 1988

Prepared for:

Mr. Michael Pounders
National Warehouse Investment Co.
4161 Carmichael Ave., Suite 157
Jacksonville, Florida 32207

Prepared by:

Groundwater Technology, Inc.
213 SW 41st Street
Renton, Washington 98055

Mark B. Winters
Geologist

Mark E. Nichols
Hydrogeologist

(NWICREPT.V2, 7-20-88)

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 1

Drilling Log

Project NWIC/Kent
Owner NWIC/Kent
Location Kent, WA
Project Number 201 799 5008
Date Drilled 5/17/88
Total Depth of Hole 22 ft
Diameter 7.5 in.
Surface Elevation
Water Level Initial 12 ft
24-hour
Screen: Dia. 2 in.
Length 15 ft
Slot Size 0.020 in.
Casing: Dia. 2 in.
Length 7 ft
Type PVC
Drilling Company Tacoma Pump & Well
Drilling Method Hollow Stem Auger
Driller E. Hansen
Log by M. Winters
Geologist / Engineer
License No.

Sketch Map

Notes:

Depth (feet)	Well Construction	PID (ppm)	Sample Number	Graphic Log	Description/Soil Classification (Color, Texture, Structures)
0				GP	Asphalt, ± 2 inches Brown gravelly sand (moist, no product odor)
2					
4					(grades green-brown)
6				CL	Dark green-brown clay with some sand (moist, no product odor) Dark green-brown fine sand with some clay (moist to wet, no product odor)
8			A	SP	
10				Peat	Dark brown clayey peat (moist, no product odor)
12			B		▼ Encountered water 5/17/88 (1530 hrs)
14				SP	Dark green-brown, fine to medium sand (wet, no product odor)
16					(grades some clay)
18					
20					
22					Drilled to 22 feet, installed monitoring well.
24					

GROUNDWATER TECHNOLOGY, INC.

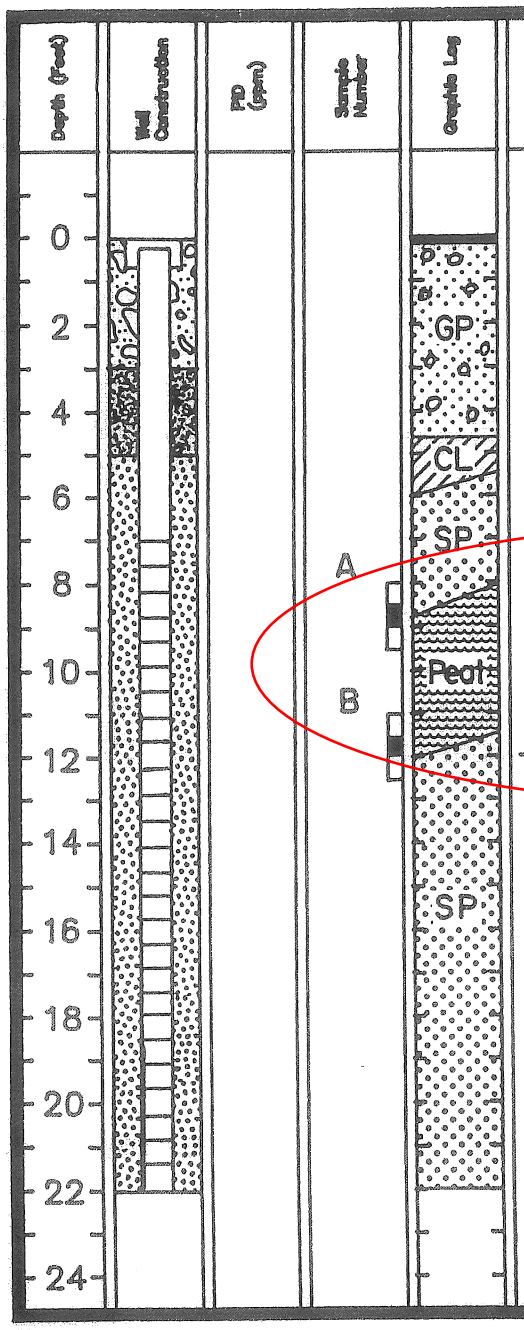
Monitoring Well 2

Drilling Log

Project NWIC/Kent
Owner NWIC/Kent
Location Kent, WA
Project Number 201 799 5008
Date Drilled 5/18/88
Total Depth of Hole 22 ft.
Diameter 7.5 in.
Surface Elevation
Water Level Initial 12 ft.
24-hour
Screen: Dia. 2 in.
Length 15 ft.
Slot Size 0.020 in.
Casing: Dia. 2 in.
Length 7 ft.
Type PVC
Drilling Company Tacoma Pump&Well
Drilling Method Hollow Stem Auger
Driller E. Hansen
Log by M. Winters
Geologist / Engineer
License No.

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt, ± 2 inches
Brown, gravelly sand (moist, no product odor)

(grades green-brown)

Dark green-brown clay with some sand
(moist, no product odor)

Dark green-brown, fine sand with some clay
(moist to wet, no product odor)

Green and brown mottled, clayey peat
(moist, no product odor)

▼ Encountered water 5/18/88 (1000 hrs.)
Dark green-brown, fine to medium sand
(wet, no product odor)

(grades some clay)

Drilled to 22 feet, installed monitoring well.

GROUNDWATER TECHNOLOGY, INC.

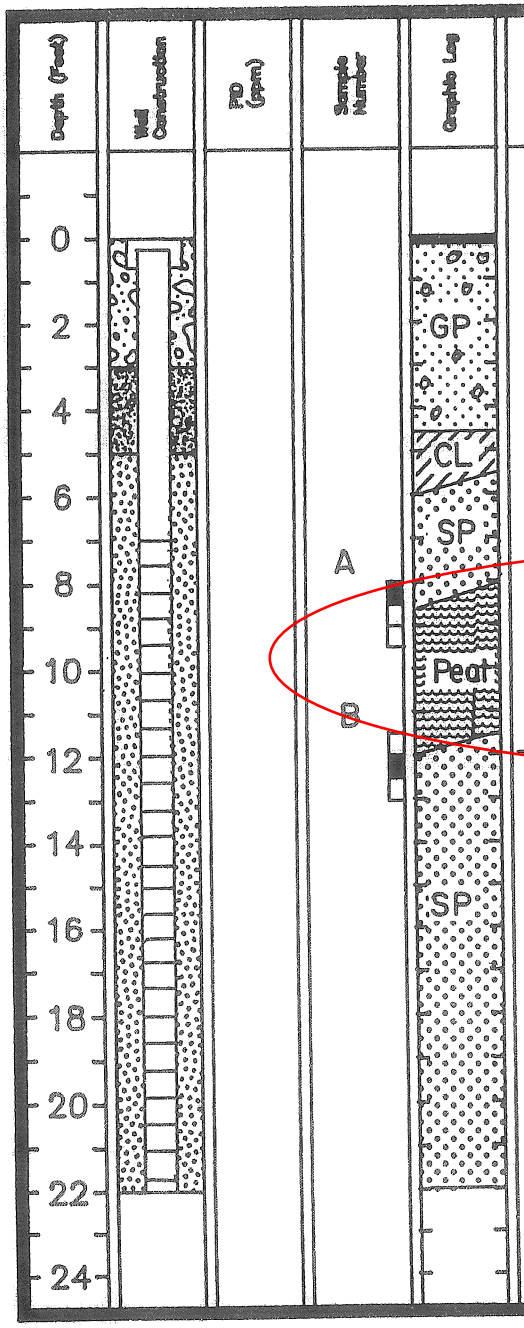
Monitoring Well 3

Drilling Log

Project NWIC/Kent
Owner NWIC/Kent
Location Kent, WA
Project Number 201 799 5008
Date Drilled 5/18/88
Total Depth of Hole 22 ft.
Diameter 7.5 in.
Surface Elevation
Water Level Initial 12 ft.
24-hour
Screen: Dia. 2 in.
Length 15 ft.
Slot Size 0.020 in.
Casing: Dia. 2 in.
Length 7 ft.
Type PVC
Drilling Company Tacoma Pump & Well
Drilling Method Hollow Stem Auger
Driller E. Hansen
Log by M. Winters
Geologist / Engineer
License No.

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt, ± 2 inches
Brown, gravelly sand (moist, no product odor)

(grades green-brown)

Dark green-brown clay with some sand
(moist, no product odor)
Dark green-brown, fine sand with some clay
(moist to wet, no product odor)

Dark brown, clayey peat (moist, no product odor)

▼ Encountered water 5/18/88 (1130 hrs.)
Dark green-brown, fine to medium sand
(wet, no product odor)

(grades some clay)

Drilled to 22 feet, installed monitoring well.

GROUNDWATER TECHNOLOGY, INC.
19226 - 66th Avenue South, Suite L-109, Kent, WA 98032 (206) 251-5441
Fax: (206) 251-8452

February 24, 1989

Mr. Mike Pounders
National Warehouse Investment Company
4161 Carmichael Avenue, Suite 157
Jacksonville, Florida 32207

RE: P.I.E. Truck Terminal, Kent, Washington

Dear Mr. Pounders,

This letter report presents an update of additional assessment work conducted by Groundwater Technology, Inc. (GTI) at the above-referenced site. The work was performed to further define the extent of dissolved hydrocarbons in the groundwater and obtain data pertinent to the design and implementation of a groundwater extraction/treatment system. The additional work was done in response to the site conditions as presented in GTI's July 20, 1988 Environmental Assessment Report. In brief, the work consisted of monitor well installation, soil and groundwater sample collection and analysis. The worksteps presented herein were performed during the period of January 25 to February 17, 1989.

Six additional monitoring wells (designated MW-5 through MW-10) were installed at the site from January 25 through January 27, 1989. Four existing monitoring wells (designated MW-1 through MW-4) were installed during the initial phases of assessment work at the site. The monitoring well locations are shown on the attached site plan. The borings for MW-5 and MW-7 through MW-9

GROUNDWATER TECHNOLOGY, INC.

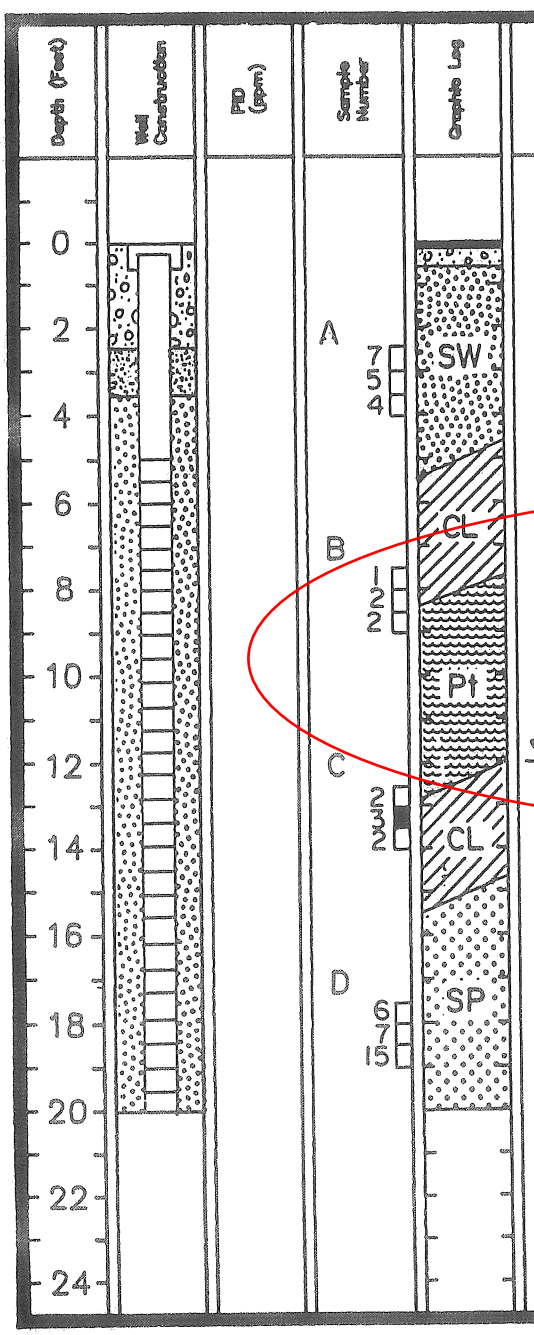
Monitoring Well 5

Drilling Log

Project NWIC/KENT | Owner NWIC/KENT
Location KENT/WA | Project Number 201 799 5008.01
Date Drilled 1/25/89 | Total Depth of Hole 20 ft | Diameter 7.5 in
Surface Elevation | Water Level Initial 12 ft | 24-hour
Screen: Dia. 2 in | Length 15 ft | Slot Size 0.020 in
Casing: Dia. 2 in | Length 5 ft | Type PVC
Drilling Company subteranean | Drilling Method hollow stem auger
Driller Jim Clark | Log by M. Winters
Geologist / Engineer | License No.

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt ± 2 inches
Brown gravelly sand, fill (loose, moist, no product odor)
Green gravelly sand (loose, moist, no product odor)

Green silty clay with sand interbedded (soft, moist, no product odor)

Brown peat (soft, moist, no product odor, organic odor)

▼ Encountered water 1/25/89 (0915 hours)
Grey green clay with fine sand (firm, wet, no product odor)
(grades more sand)

Brown-grey fine to medium sand (medium dense, wet, no product odor)

Drilled to 20 ft. Installed 2-inch monitor well.

GROUNDWATER TECHNOLOGY, INC.

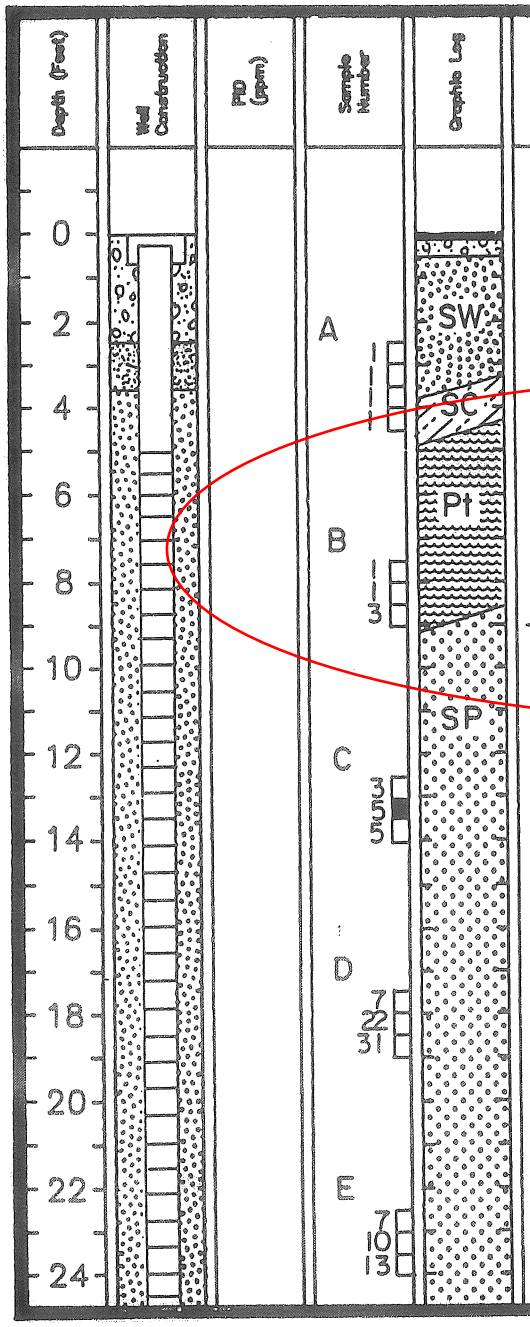
Monitoring Well 6

Drilling Log

Project NWIC/KENT Owner NWIC/KENT
Location KENT, WA Project Number 201 799 5008.01
Date Drilled 1/25/89 Total Depth of Hole 30 ft Diameter 7.5 in
Surface Elevation ____ Water Level Initial 9 ft 24-hour ____
Screen: Dia. 2 in Length 20 ft Slot Size 0.020 in
Casing: Dia. 2 in Length 5 ft Type PVC
Drilling Company subteranean Drilling Method hollow stem auger
Driller Tim Clark Log by M. Winters
Geologist / Engineer ____ License No. ____

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt 2 inches
Brown gravelly sand, fill (loose, slightly moist, no product odor)
Grey-green gravelly sand, with minor clay (very loose, moist, no product odor)
Grey-green-brown clayey fine sand (very loose, moist to wet, no product odor)
Brown peat (soft, moist, no product odor)

▼ Encountered water 1/25/89 (1130 hours)
Brown-grey fine sand (medium dense, wet, no product odor)

(grades some clay)

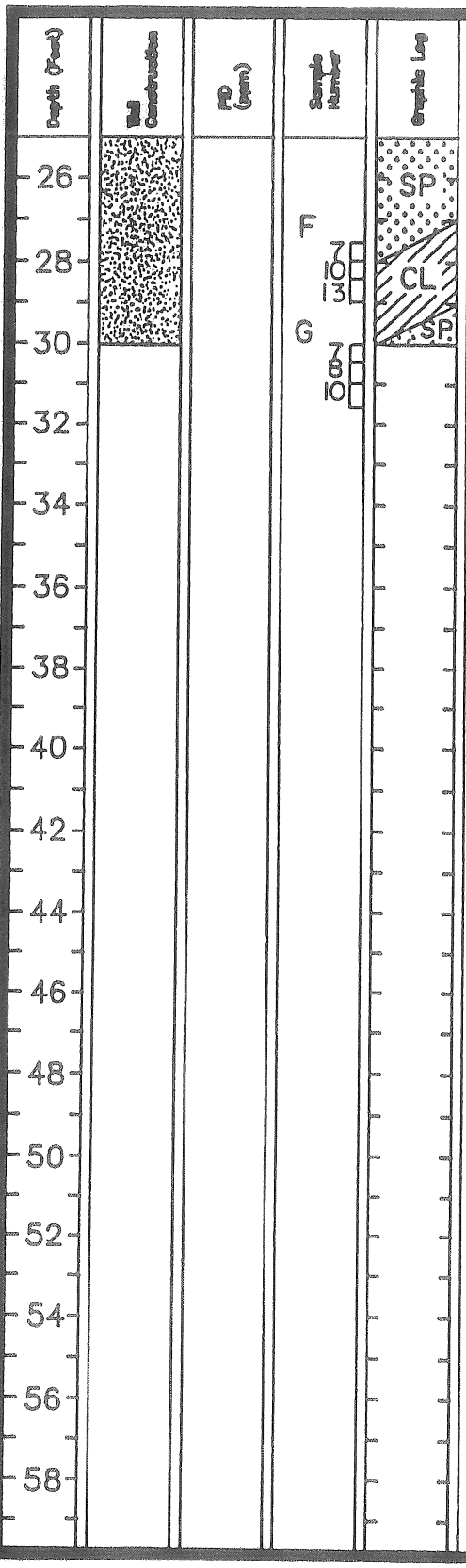
(grades very dense)

(grades medium dense)

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 6

Drilling Log



Description/Soil Classification
(Color, Texture, Structures)

(grades coarser, no clay)

Grey brown silty clay w/organics (v stiff, moist, no odor) (some fine clayey sand interbeds)
(grades sandy)

Grey-brown fine to medium sand (medium dense, wet, no odor)

Drilled to 30 feet backfilled to 25 feet with bentonite, installed 2 inch monitor well.

6/88 REV. B

GROUNDWATER TECHNOLOGY, INC.

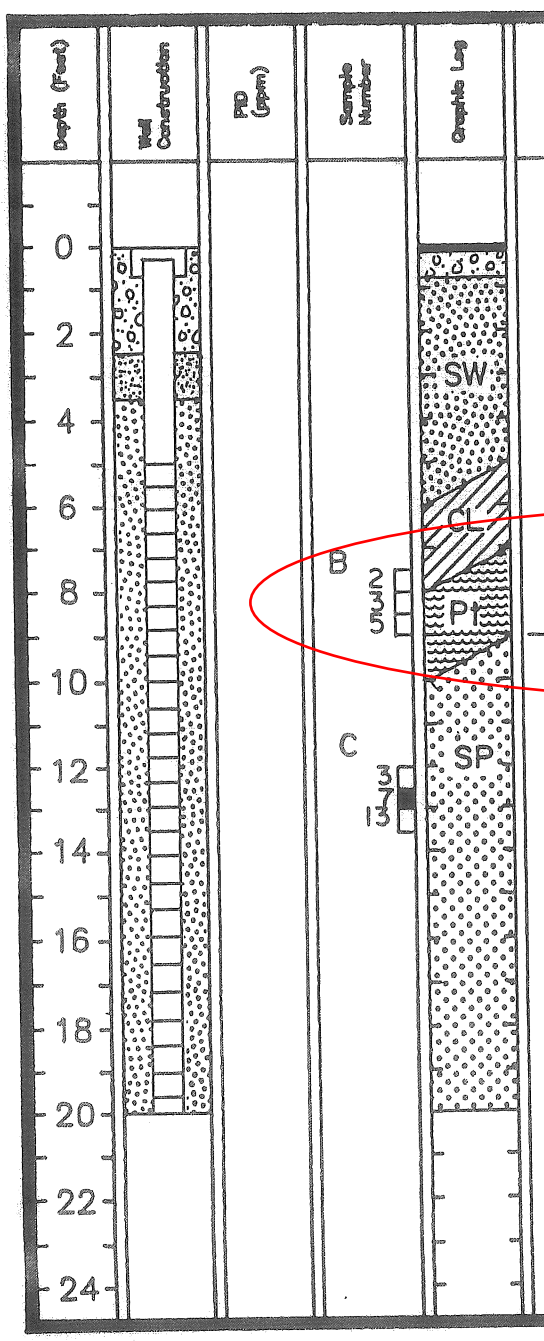
Monitoring Well 7

Drilling Log

Project NWIC/KENT Owner NWIC/KENT
Location KENT/WA Project Number 201 799 5008.01
Date Drilled 1/25/89 Total Depth of Hole 20 ft Diameter 7.5 in
Surface Elevation Water Level Initial 9 ft 24-hour
Screen: Dia. 2 in Length 15 ft Slot Size .020 in
Casing: Dia. 2 in Length 5 ft Type PVC
Drilling Company subteranean Drilling Method hollow stem auger
Driller Jim Clark Log by M. Winters
Geologist / Engineer License No.

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt ± 2 inches
Brown gravelly sand, fill (slightly moist, no product odor)
Grey-green gravelly sand with some clay (loose, slightly moist, no product odor)

Green brown mottled clay (moist, no product odor)

Black-brown peat (firm, moist, no product odor)

▼ Encountered water 1/25/89 (3:45 hours)

Brown fine to medium sand (medium dense, wet, no product odor)

Drilled to 20 ft installed 2 in monitor well.

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 8

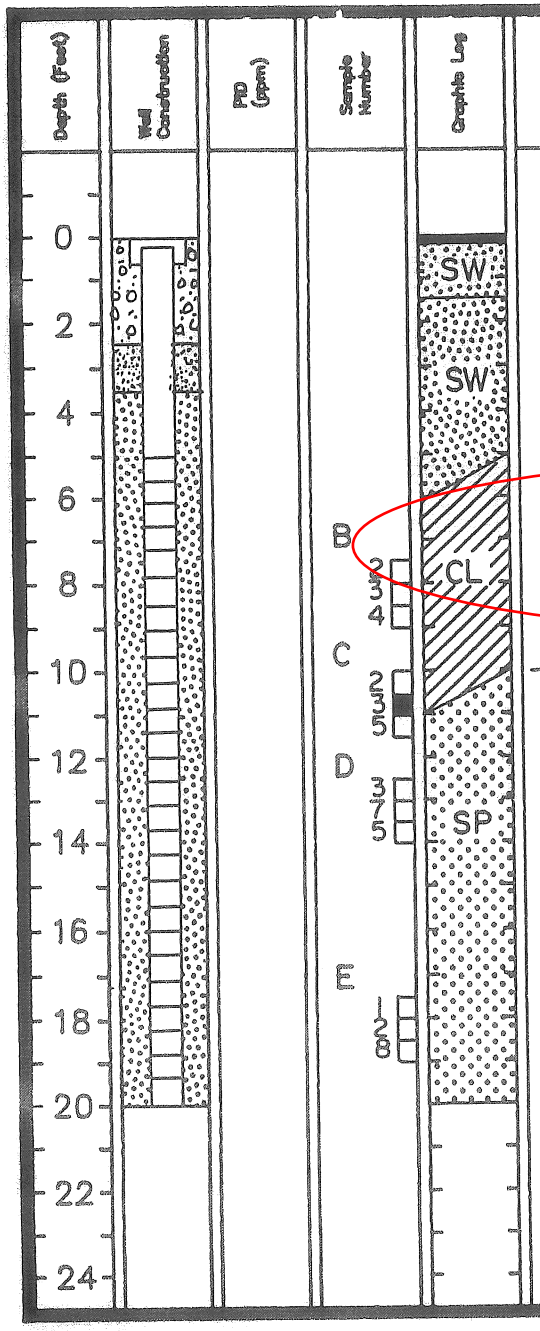
Drilling Log

Project NWIC/KENT
Location KENT, WA
Date Drilled 1/26/89
Surface Elevation
Screen: Dia. 2 in Length 15 ft
Casing: Dia. 2 in Length 5 ft
Drilling Company subteranean
Driller Tim Clark
Geologist / Engineer

Owner NWIC/KENT
Project Number 201 799 5008.01
Total Depth of Hole 20 ft Diameter 7.5 in
Water Level Initial 10 ft 24-hour
Slot Size .020 in
Type PVC
Drilling Method hollow stem auger
Log by M. Winters
License No.

Sketch Map

Notes:



Description/Soil Classification
(Color, Texture, Structures)

Asphalt ± 2 inches
Brown gravelly sand (fill) (slightly moist, no product odor)
Grey-green gravelly sand, with some clay (loose, moist, no product odor)

Grey-green and brown mottled, silty clay (soft, moist, no product odor)
Brown peat interbeds (moist, no odor)

▼ Encountered water 1/25/89 (0900)
Dark brown grey fine sand, som clay (medium dense, wet, no product odor)

(grades fine to medium, no clay)

(grades finer, some clay)

Drilled to 20 feet, installed 2-inch monitor well.

GROUNDWATER TECHNOLOGY, INC.

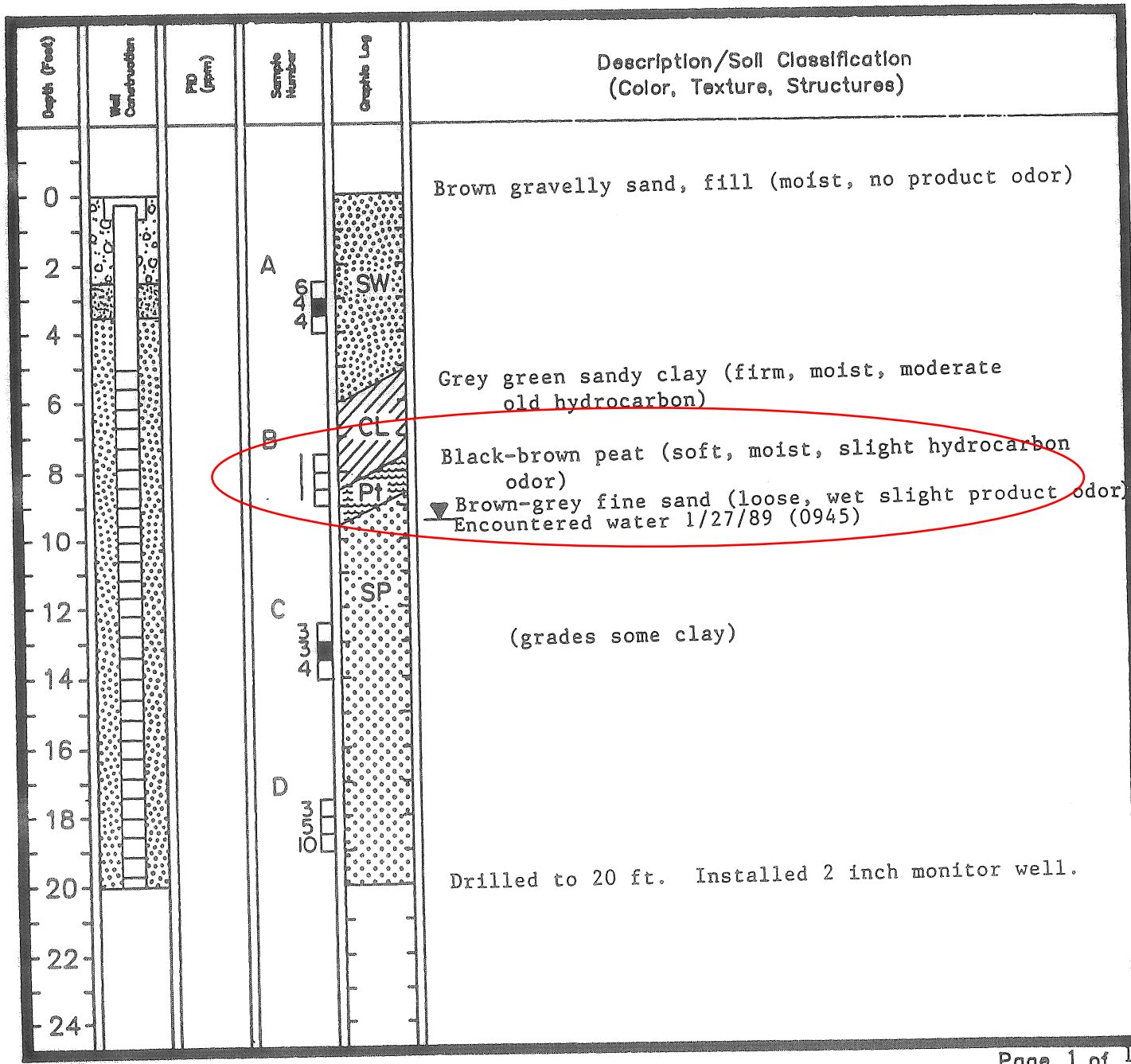
Monitoring Well 9

Drilling Log

Project NWIC/KENT
Owner NWIC/KENT
Location KENT, WA
Project Number 201 799 5008.01
Date Drilled 1/27/89
Total Depth of Hole 20 ft
Diameter 7.5 in
Surface Elevation
Water Level Initial 9.5 ft
24-hour
Screen: Dia. 2 in
Length 15 ft
Slot Size .020 in
Casing: Dia. 2 in
Length 5 ft
Type PVC
Drilling Company subteranean
Drilling Method hollow stem auger
Driller Jim Clark
Log by M. Winters
Geologist / Engineer
License No.

Sketch Map

Notes:



GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 10

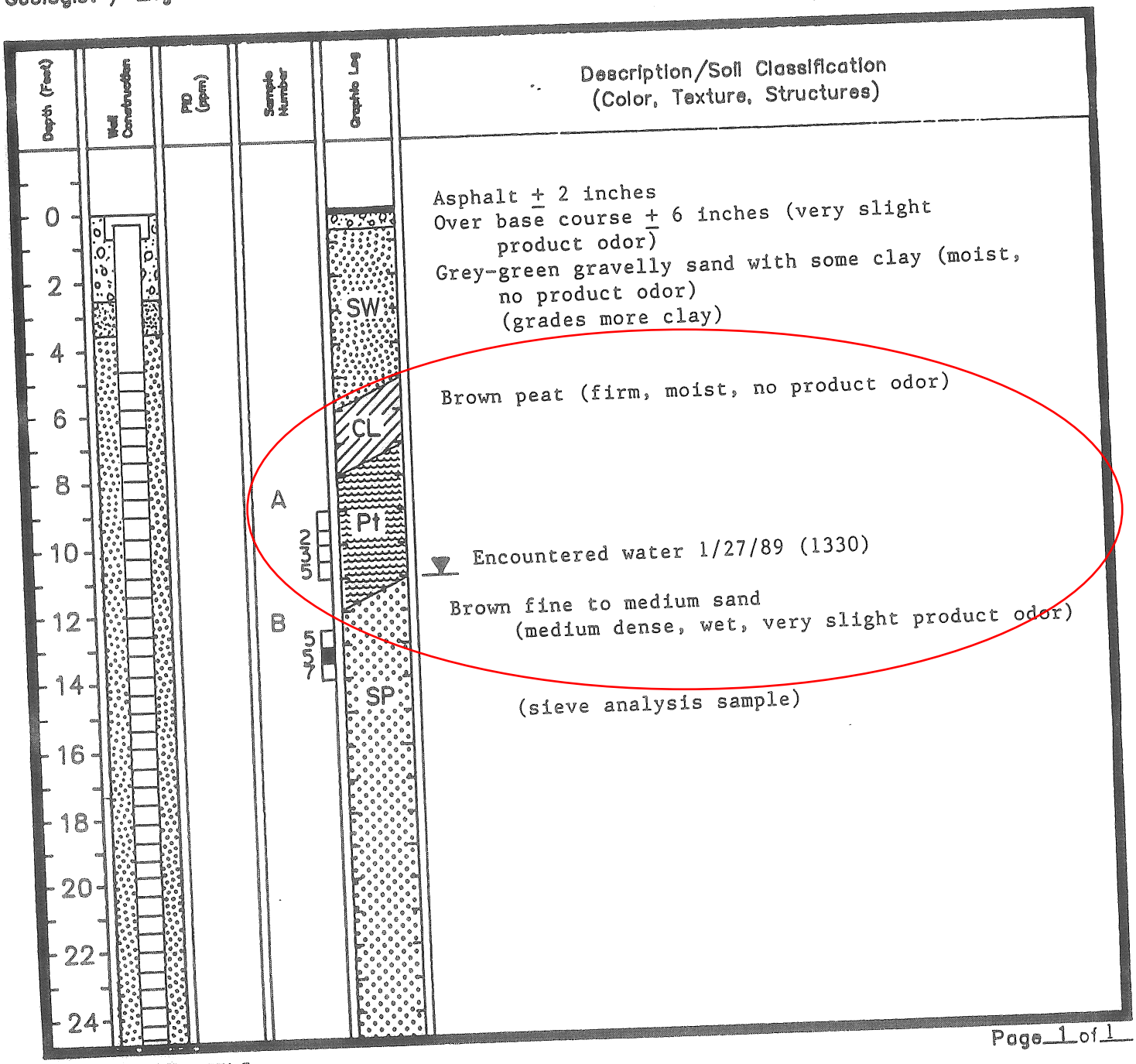
Drilling Log

Project NWIC/KENT
Location KENT, WA
Date Drilled 1/27/89
Surface Elevation
Screen: Dia. 4 in Length 25 ft
Casing: Dia. 4 in Length 4.5 ft
Drilling Company subteranean
Driller Tim Clark
Geologist / Engineer

Owner NWIC/KENT
Project Number 201 799 5008.01
Total Depth of Hole 30 ft Diameter 10.5 in
Water Level Initial 11 ft 24-hour
Slot Size 0.020 in
Type PVC
Drilling Method hollow stem auger
Log by M. Winters
License No.

Sketch Map

Notes:



GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 10

Drilling Log

Depth (Feet)	Well Construction	PID (ppm)	Sample Number	Graphic Log	Description/Soil Classification (Color, Texture, Structures)
26			C 8		(grades coarser)
			14		
			20		
28			25	SP	(sieve analysis sample)
			D 6		
			7		
			14		
30			25		Drilled to 30 feet. Installed 4-inch monitor well to 29.5 feet.
32					
34					
36					
38					
40					
42					
44					
46					
48					
50					
52					
54					
56					
58					

APPENDIX B

Laboratory Analytical Reports
Friedman & Bruya, Inc.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 30, 2021

Dan Whitman, Project Manager
Whitman Environmental Sciences
6812 16th Ave NE
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on September 22, 2021 from the FedEx Old Kent WES 1276, F&BI 109402 project. There is 1 page 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
WES0930R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 22, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences FedEx Old Kent WES 1276, F&BI 109402 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
109402 -01	MW-3-GW
109402 -02	MW-7-GW
109402 -03	MW-8-GW
109402 -04	MW-13-GW

The samples were sent to Fremont Analytical for total organic carbon analysis. The report is enclosed.

All quality control requirements were acceptable.

SAMPLE CHAIN OF CUSTODY

109402 [redacted]

09-22-21 [redacted]

E03 / AI2

Page # ____ of ____

Report To: Ben Whitman

Company: Whitman Env. Services

Address: 6812 16th Ave NE

City, State, ZIP: Seattle, WA 98115

Phone: ____ Email: whitmanwes@yahoo.com

SAMPLERS (*signature*)	
PROJECT NAME: Fred Old Kent	PO #: WES 1276
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

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	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	[illegible]				Notes
MW-3-GW	01 A-B	9-2021	AM	Water	2								X				SAVE AMBER
MW-7-GW	02												X				GLASS FOR
MW-8-GW	03												X				POSSIBLE
MW-13-GW	04												X				D(X) AFTER
																	TCL's ARE
																	REVIEWED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]		WES	9-21-21	5:08
Received by:	[signature]	JOE MOHAMMED	FBI	9/22/21	17:08
Relinquished by:		Samples received at 4 °C			
Received by:					

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

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 109402
Work Order Number: 2109379

September 28, 2021

Attention Michael Erdahl:

Fremont Analytical, Inc. received 4 sample(s) on 9/23/2021 for the analyses presented in the following report.

Total Organic Carbon by SM 5310C

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,

Brianna Barnes
Project Manager

Date: *09/28/2021*

CLIENT: Friedman & Bruya
Project: 109402
Work Order: 2109379

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2109379-001	MW-3-GW	09/20/2021 12:00 AM	09/23/2021 10:36 AM
2109379-002	MW-7-GW	09/20/2021 12:00 AM	09/23/2021 10:36 AM
2109379-003	MW-8-GW	09/20/2021 12:00 AM	09/23/2021 10:36 AM
2109379-004	MW-13-GW	09/20/2021 12:00 AM	09/23/2021 10:36 AM

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

Case Narrative

WO#: **2109379**
Date: **9/28/2021**

CLIENT: Friedman & Bruya
Project: 109402

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

Analytical Report

Work Order: **2109379**
Date Reported: **9/28/2021**

Client: Friedman & Bruya
Collection Date: 9/20/2021
Project: 109402
Lab ID: 2109379-001
Matrix: Water
Client Sample ID: **MW-3-GW**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by SM 5310C				Batch ID: R70170		Analyst: TN
Total Organic Carbon	24.6	0.500		mg/L	1	9/27/2021 5:09:00 PM

Analytical Report

Work Order: **2109379**
Date Reported: **9/28/2021**

Client: Friedman & Bruya
Collection Date: 9/20/2021
Project: 109402
Lab ID: 2109379-002
Matrix: Water
Client Sample ID: **MW-7-GW**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by SM 5310C				Batch ID: R70170		Analyst: TN
Total Organic Carbon	53.9	1.00	D	mg/L	2	9/27/2021 5:55:00 PM

Analytical Report

Work Order: **2109379**
Date Reported: **9/28/2021**

Client: Friedman & Bruya
Collection Date: 9/20/2021
Project: 109402
Lab ID: 2109379-003
Matrix: Water
Client Sample ID: **MW-8-GW**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by SM 5310C				Batch ID: R70170		Analyst: TN
Total Organic Carbon	39.1	0.500		mg/L	1	9/27/2021 6:18:00 PM

Analytical Report

Work Order: **2109379**
Date Reported: **9/28/2021**

Client: Friedman & Bruya
Collection Date: 9/20/2021
Project: 109402
Lab ID: 2109379-004
Matrix: Water
Client Sample ID: **MW-13-GW**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by SM 5310C				Batch ID: R70170		Analyst: TN
Total Organic Carbon	77.3	1.00	D	mg/L	2	9/27/2021 6:41:00 PM

Work Order: 2109379
CLIENT: Friedman & Bruya
Project: 109402

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sample ID: **MB-R70170** SampType: **MBLK** Units: **mg/L** Prep Date: **9/27/2021** RunNo: **70170**
Client ID: **MBLKW** Batch ID: **R70170** Analysis Date: **9/27/2021** SeqNo: **1423516**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.500									

Sample ID: **LCS-R70170** SampType: **LCS** Units: **mg/L** Prep Date: **9/27/2021** RunNo: **70170**
Client ID: **LCSW** Batch ID: **R70170** Analysis Date: **9/27/2021** SeqNo: **1423517**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	5.08	0.500	5.000	0	102	93.1	106				

Sample ID: **2109379-001ADUP** SampType: **DUP** Units: **mg/L** Prep Date: **9/27/2021** RunNo: **70170**
Client ID: **MW-3-GW** Batch ID: **R70170** Analysis Date: **9/27/2021** SeqNo: **1423519**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	25.0	0.500						24.58	1.59	20	

Sample ID: **2109379-004AMS** SampType: **MS** Units: **mg/L** Prep Date: **9/27/2021** RunNo: **70170**
Client ID: **MW-13-GW** Batch ID: **R70170** Analysis Date: **9/27/2021** SeqNo: **1423523**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	89.0	1.00	10.00	77.31	117	69.1	124				D

Sample ID: **2109379-004AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **9/27/2021** RunNo: **70170**
Client ID: **MW-13-GW** Batch ID: **R70170** Analysis Date: **9/27/2021** SeqNo: **1423524**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	88.6	1.00	10.00	77.31	113	69.1	124	89.03	0.518	30	D

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2109379**
Logged by:	**Clare Griggs**	Date Received:	**9/23/2021 10:36:00 AM**

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: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	5.7

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2109379

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
109402	B-419

REMARKS

TURNAROUND TIME
- ☒ Standard TAT
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	TOC							Notes
MW-3-GW		9/20/21	AM	water	1				x							
MW-7-GW		"	"	"	1				x							
MW-8-GW		"	"	"	1				x							
MW-13-GW		"	"	"	1				x							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	9/23/21	0853
Received by:	Alex Trejo	Alex Trejo	FAE	9/23/21	10:36
Relinquished by:					
Received by:					