WHITMAN Environmental Sciences

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September 6, 2017

Seattle Land Use Co.
1100 Dexter Ave N - Suite 275
Seattle, WA 98109

Attention: Mr. Michael Pollard

Subject: Additional Off-Site Environmental Site Investigation
104 -124 12th Avenue & 1209 E. Fir Street
Seattle, Washington

Dear Mr. Pollard:
As you have authorized, ***Whitman Environmental Sciences, (WES)*** has conducted additional investigation around the boundaries of the above referenced property in order to meet due diligence requirements. The work supplements a previous Phase I & Phase II Environmental Site Assessment conducted on the subject property (*Phase I & II Environmental Site Assessment, Potential Redevelopment Property, 104-124 12th Avenue & 1209 E. Fir Street, Seattle, Washington*, Project No. WES-1591, September 1, 2017). The purposes of this current phase of work were to: 1.) evaluate the potential that soil and groundwater contaminants originating from off-site sources may have impacted the property, and 2.) evaluate whether or not known on-site conditions extended beyond the subject property lines.

This phase of investigation did not identify any conditions in these off-site borings that exceeded Washington State Model Toxics Control Act soil or groundwater cleanup criteria. No further off-site investigation appears to be warranted.

Subject Property and Surrounding Area Summary
The subject property is on the eastern side of 12th Avenue, extending from the intersection with E. Yesler Way to E. Fir Street, in the Yesler Terrace neighborhood of Seattle, Washington (Figure 1). The property consists of approximately 47,433 square feet of land developed with three older commercial buildings. There are two portions of the property used as parking lots.

During the course of our initial Phase I & II assessment, historical information identified surrounding area properties with recognized environmental conditions with the potential to impact the subject property. These include an extended history of dry cleaning operations on property on the west side of 12th Avenue; former gas stations on the northeast and northwest corners of the intersection of 12th Avenue and E. Fir Street, and a former dry cleaning facility on the adjoining block to the north, with known groundwater contamination by chlorinated solvents. In addition, on-site testing found recognized environmental conditions on the southern edge of the subject property. These appear to be related to a former auto repair facility that was located in the basement of the 104 12th Avenue building. Based on these conditions, WES recommended additional investigation of areas beyond the property boundary to better define conditions in the surrounding area.

OFF-SITE INVESTIGATION

WES conducted an environmental investigation around the north, south and west perimeter of the site to identify and quantify soil and groundwater concentrations of common petroleum constituents and volatile organic compounds related to dry cleaning solvents. The field work for this study was conducted on August 3rd and 4th, 2017.

Conducting this work required a street-use permit from the City of Seattle. A traffic control plan was required to close sidewalks and parking lanes in the vicinity of the site. A flagman, barricades and approved traffic control signs were in use throughout the work conducted for this study.

Soil and Groundwater Sampling

During this off-site investigation, ESN Northwest, Inc., under subcontract to WES, drilled 12 soil borings in the sidewalks, boulevards and parking lane adjacent to the subject property. The approximate boring locations, identified as OS-1 through OS-12, are shown in Figure 2. Each boring was drilled to depths ranging from nine to 30 feet below the ground surface.

A total of 22 soil samples were selected for laboratory analysis. Groundwater samples were obtained from nine of the soil borings through temporary screens. Three of the borings did not produce volumes of groundwater seepage that could be sampled.

Daniel Whitman L.G., a licensed geologist from WES, conducted all sampling for this project.

Field Drilling and Sampling Procedures

Due to access constraints, some of the borings were drilled using a small tractor-mounted Geoprobe rig, while others were conducted with larger, truck-mounted Geoprobes. These borings were drilled by direct-push methods, hydraulically driving a four or five-foot long sampler to obtain continuous soil samples throughout the drilled depth. Sample recovery was sometimes limited by loose or exceptionally dense soil conditions. The samplers were cleaned prior to each sampling attempt and were equipped with new acetate liners which isolated the sampled soil from contact with the body of the sampler.

Representative portions of each sample were placed in laboratory prepared vials and glass jars with teflon-lined lids, chilled and held under chain-of-custody, following appropriate environmental sampling procedures. Additional portions of all samples were held for potential laboratory testing and soil classification reference.

At the final depth of each boring, it was checked for standing water in the borehole. A 1-inch diameter factory-slotted PVC well screen was temporarily installed in each boring to allow groundwater sampling. Where possible, the screen was purged to remove sediment using a peristaltic pump equipped with new polyethylene tubing.

Groundwater seepage was encountered in nine of the borings. In five of the borings, recharge to the screen was sufficient to allow pumping until turbidity was reduced and relatively clear water could be obtained. Four other borings (OS-2, OS-5, OS-8 and OS-12) produced very little recharge water and sampling was limited to small quantities of turbid water. Three other borings (OS-4, OS-10 and OS-11) were allowed to stand for at least 30 minutes but produced no measurable groundwater seepage. After drilling and sampling was completed, these borings were sealed with bentonite and surficial asphalt or concrete patches were placed at the ground surface to match the surrounding surface.

Field Observations

During drilling, the samples were reviewed for soil classification purposes and any field detectable evidence of soil and groundwater contamination. There were no readily apparent indications such as staining, odors, discoloration or liquid petroleum at any depth in any of the borings.

Shallow soils consisted of silty and clayey sand and silty clay with varying amounts of gravel and organic material, interpreted to be fill. This soil typically extended to depths of three to eight feet, overlying organic silty soils that may have been a former topsoil horizon. This material was overlying relatively dense silt or clayey sands extending throughout the depths drilled.

Where it was encountered, groundwater was observed to be in sandier horizons within the clayey sand soils at depths ranging from eight to 22 feet below the ground surface. Because of the slow recharge rates, no stabilized groundwater level measurements were obtained from these off-site borings.

Laboratory Testing of Environmental Samples

Based on the observed conditions, a program of laboratory testing was conducted on soil samples from each boring. The selected samples were submitted to Friedman & Bruya, Inc., a Washington-state certified laboratory, for environmental analyses. A total of 22 soil samples and nine groundwater samples were analyzed. All laboratory testing was completed within appropriate holding times and met the quality assurance/quality control requirements of the project. Except for one sample, analyses were completed with detection limits appropriate for comparison to applicable regulatory criteria. Due to the limited volume of water available from boring OS-5, the detection limit for motor oil-range petroleum was elevated above the MTCA cleanup criteria for that parameter.

Soil samples were selected for laboratory testing from soil intervals that were deemed most susceptible to impacts from the potential sources, or demonstrating conditions at important depths below the ground surface. The selected soil sample depths are noted in Table 1.

Laboratory Analyses

Soil Samples

Fourteen selected soil samples were tested for total petroleum hydrocarbons (TPH) in the gasoline, diesel and motor oil-ranges by Washington method NWTPH-HCID. This test can identify the presence of hydrocarbons above a threshold detection limit, but cannot accurately quantify the findings. Any detection requires follow-up analysis in for the appropriate range of petroleum to compare the analytical result with Washington State Model Toxics Control Act (MTCA) soil cleanup criteria. One samples required follow-up testing, but the subsequent analysis did not find detectable concentrations of TPH.

Six soil samples from susceptible depths were analyzed for gasoline-range total petroleum hydrocarbons by Washington method NWTPH-G. These samples were also tested for a list of volatile organic compounds using EPA Method 8260C. This analysis can identify and quantify a list of 63 volatile organic compounds, including petroleum constituents, solvents associated with dry cleaning and related breakdown products.

The results of all laboratory testing of soil samples are summarized in Table 2. The table includes the MTCA soil cleanup criteria used to determine whether or not the sample results meet State requirements. The laboratory reports are included in Appendix A.

Groundwater Samples
All nine groundwater samples taken in this study were analyzed for gasoline-range total petroleum hydrocarbons by Washington method NWTPH-G, diesel and motor oil-range total petroleum hydrocarbons by Washington method NWTPH-D (extended), and volatile organic compounds using EPA Method 8260C.

The results of all laboratory testing of groundwater samples are summarized in Table 2. The table includes the MTCA groundwater cleanup criteria used to determine whether or not the sample results meet State requirements.

Off-Site Investigation Results and Conclusions

This site investigation found no evidence of impacts to soil or groundwater at concentrations that exceeded MTCA soil or groundwater cleanup criteria.

One soil sample evidenced a low but detectable concentration of gasoline-range petroleum hydrocarbons (TPH-G). The tested location was from a depth of 16 feet in boring OS-7, adjacent to the former on-site service station in the northwestern part of the subject property. The reported TPH-G concentration was 2.5 mg/kg, units equivalent to parts per million (ppm). The MTCA Method A Cleanup level is 30 mg/kg for gasoline mixtures where benzene is present, as has been identified in on-site borings near this area. The findings from this sample indicate that the known on-site conditions do not appear to extend beyond the site boundaries at levels requiring cleanup.

No other soil sample contained any detectable concentration of any of the analyzed parameters.

No impacts to groundwater were identified at levels exceeding MTCA Method A cleanup levels. The most widespread groundwater contaminant, below levels of concern, was TPH-D. Where found, it was reported at concentrations ranging from 66 to 290 ug/l, units equivalent to parts per billion (ppb). The laboratory flagged all of the TPH-D detections, indicating the chromatograms did not match the laboratory standard for diesel. This suggests much of the reported concentration may be organic matter or degraded gasoline-range TPH. The sample collected from boring OS-12 also contained low but detectable concentrations of benzene (0.5 ug/l) and toluene (2.5 ug/l), which suggests at least some impacts from the former on-site service station. OS-12 was drilled near the southeastern corner of the former service station area of the subject site. The reported concentrations are below MTCA cleanup criteria.

Cis-1,2-dichloroethene was detected at low levels in two of the borings along the southeastern perimeter of the site, along Yesler Way (borings OS-1 and OS-2). Trichloroethene (TCE) was reported in the sample from boring OS-1. The reported concentrations are below the MTCA groundwater cleanup criteria for these compounds.

FINDINGS AND CONCLUSIONS

The Model Toxics Control Act (MTCA), Chapter 173-340 WAC, is the Washington State law regarding releases of hazardous or regulated materials to the environment. MTCA defines a contaminated “Site” as the property where the contamination originated as well as any adjoining or nearby properties that have been impacted by the contamination. The findings of this additional off-site investigation indicate the subject property is not likely to have been impacted by the known contaminated properties to the north and west, so would not be considered part of any of these

"Sites" as defined by Ecology. The findings also indicate known conditions on the subject property do not appear to extend beyond the property boundaries.

No further off-site investigation appears to be warranted.

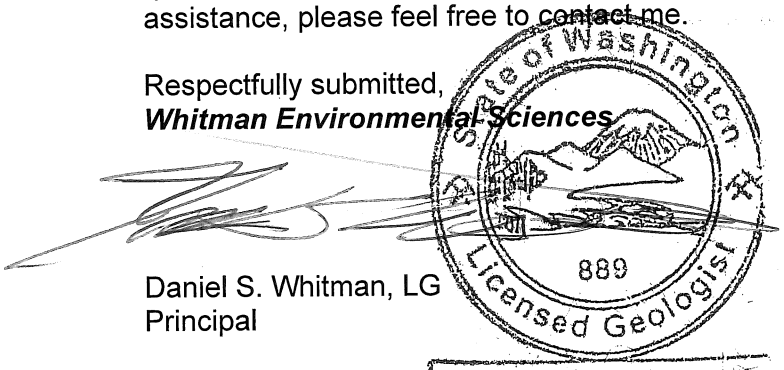
Limitations

This report is an instrument of service prepared for the exclusive use of the Seattle Land Use Company, its agents, employees and representatives. The recommendations contained in this report represent our professional opinions based on our observations and subcontracted analytical testing, prepared in accordance with currently accepted professional consulting practices and environmental assessment procedures. No environmental assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Environmental conditions and regulations are subject to constant change and reinterpretation. Current conditions or regulatory status should not be assumed to represent conditions at some future time. WES does not guarantee that the site is free of hazardous or potentially hazardous materials or conditions, or that latent or undiscovered conditions will not become evident in the future. No other warranties, representations, or certifications are made. WES will not be responsible for the interpretation of this report by others.

CLOSURE

Whitman Environmental Sciences has been pleased to be of service in this matter. If you have any questions regarding the information contained in this report, or if we may be of any further assistance, please feel free to contact me.

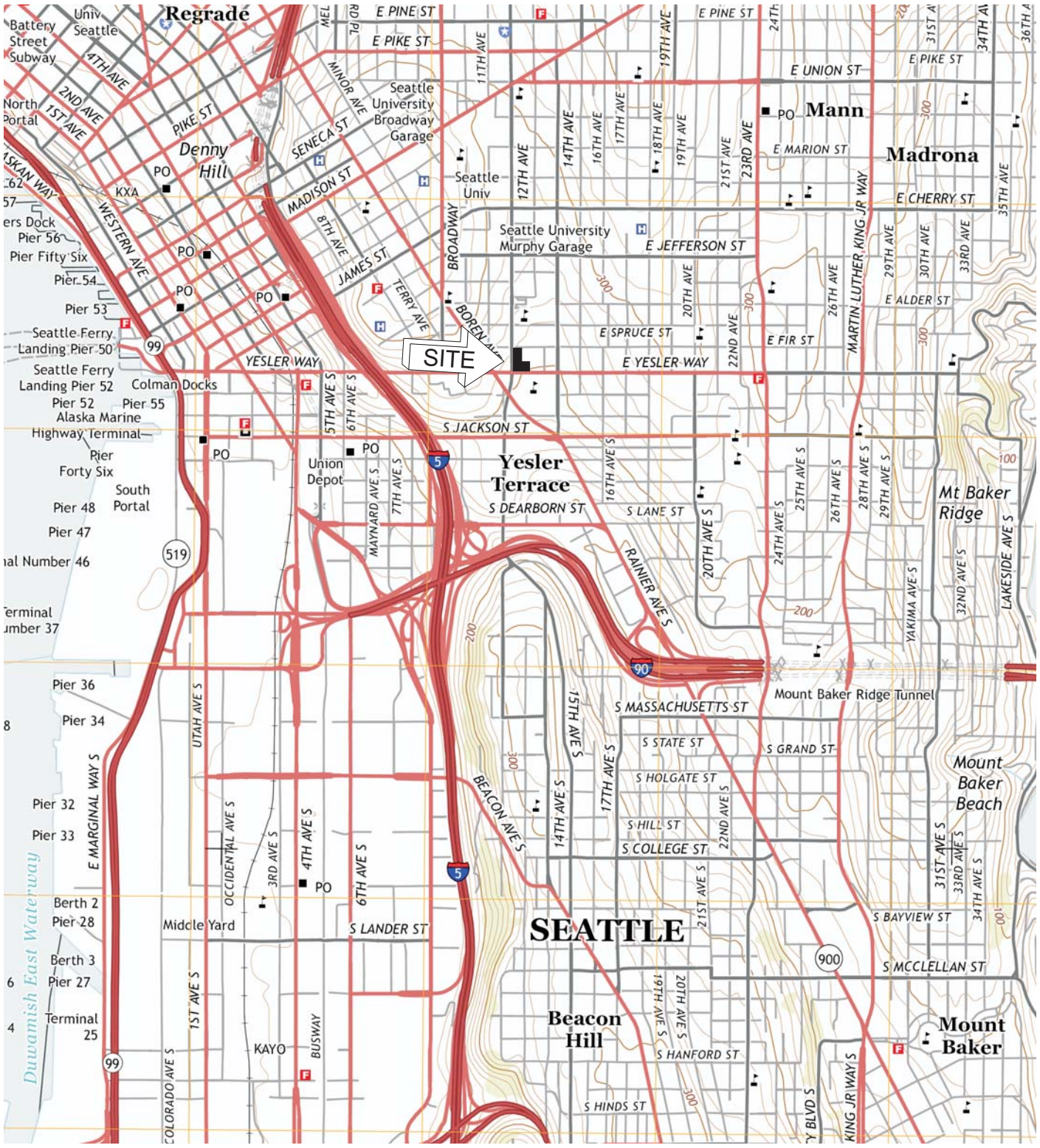
Respectfully submitted,
Whitman Environmental Sciences



Daniel S. Whitman, LG
Principal

Attachments: Figure 1 - Site Map
Figure 2 - Off-Site Boring Location Plan
Table 1 - Summary of Off-Site Soil Sample Analytical Results
Table 2 - Summary of Off-Site Groundwater Sample Analytical Results

APPENDIX A - Laboratory Analytical Reports, Friedman & Bruya, Inc.



North

0 2000’

Scale 1 : 24,000

From USGS

Figure 1 - Site Map

104-124 12th Avenue & 1209 E. Fir Street
Seattle, Washington 98122

Project No.	WES - 1591
Date	June 11, 2017
File ID.	1591F1

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Legend

- Approximate Location of Current Off-Site Soil Borings

North

0 60'

Scale 1" = Approx. 60'

Figure 2 - Off-Site Soil Boring Location Plan

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, Washington

Project No.	WES - 1591
Date	Sep 2, 2017
File ID.	1591F2

Whitman Environmental Sciences

TABLE 1
Summary of Off-site Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring I.D.	Total Depth Drilled (ft.)	Sample Depth (ft.)	Boring Location	Laboratory Analytical Results (mg/kg)		
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G & NWTPH-D(x)	Benzene Toluene Ethyl benzene Xylenes (by EPA Method 8260C)	Other Volatile Organic Compounds (List of 58 Additional Compounds Detectable by the Laboratory Method.)
OS-1	16'	12'	In sidewalk of Yesler Way, adjacent to SE corner of parking lot for 104 12th Ave. bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-2	12'	7.5'	In sidewalk of Yesler Way, adjacent to SE corner of 104 12th Ave. bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		11'	Same	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-3	15'	12'	In sidewalk of Yesler Way, SW of double doors to basement, 30' W of bldg. corner.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-4	9' (refusal)	6'	In sidewalk of Yesler Way, SW of garage door into 104 12th Ave. bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		9'	Same	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)

TABLE 1
Summary of Off-site Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring I.D.	Total Depth Drilled (ft.)	Sample Depth (ft.)	Boring Location	Laboratory Analytical Results (mg/kg)		
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G & NWTPH-D(x)	**Benzene Toluene Ethyl benzene Xylenes** (by EPA Method 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)
OS-5	14'	7'	In sidewalk of 12th Ave., 40' N of SW corner of 104 12th bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		14'	Same	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)
OS-6	12'	7'	In sidewalk of 12th Ave., 15' S of NW corner of 104 12th bldg.	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)
		10'	Same	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-7	20'	8'	In Sidewalk of 12th Ave., adjacent to tree, 40' S of NW corner of 124 12th parking lot.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		12'	Same	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)
		16'	Same	Gasoline: 2.5 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)

TABLE 1
Summary of Off-site Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring I.D.	Total Depth Drilled (ft.)	Sample Depth (ft.)	Boring Location	Laboratory Analytical Results (mg/kg)		
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G & NWTPH-D(x)	**Benzene Toluene Ethyl benzene Xylenes** (by EPA Method 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)
OS-8	20'	7'	In blvd. gravel strip N. of 1209 E. Fir bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		17'	Same	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)
OS-9	25'	14'	In blvd. grass strip N. of 124 12th Ave. parking lot	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-10	30'	6'	In curb lane of 12th Ave., 10' N. of NW corner of 104 12th Ave. bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		10'	Same	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
OS-11	20'	9'	In curb lane of 12th Ave., adjacent to vacant 118 12th Ave. bldg.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		11'	Same	Gasoline: ND (<20) Diesel: ND (<5) Motor Oil: ND (<25)	NA	NA

TABLE 1

Summary of Off-site Soil Sample Analytical Results

104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring I.D.	***Total Depth Drilled (ft.)***	***Sample Depth (ft.)***	***Boring Location***	***Laboratory Analytical Results (mg/kg)***		
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G & NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***
OS-12	20'	13'	In sidewalk at S entry drive to 124 12th Ave., parking lot.	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
		16'	Same	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA
MTCA Soil Cleanup Criteria				***Gasoline: 30*** ***If no benzene present: 100*** ***Diesel or Motor Oil: 2,000***	***Benzene: 0.03*** ***Toluene: 7*** ***Ethylbenzene: 6*** ***Xylenes: 9***	***Other VOCs vary***

Table 1 Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-HCID or NWTPH-G.
Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-HCID or NWTPH-D(x).
BTEX compounds as part of volatile organic analysis by EPA Method 8260C.
Volatile organic compounds by EPA Method 8260C for a list of 62 different volatile parameters. Detection limits vary.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Otherwise, Method B standard formula values presented.

Sample results exceeding applicable cleanup criteria are noted in ***Bold Italic***.

TABLE 2
Summary of Off-Site Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Date***	***Laboratory Analytical Results (ug/l)***		
		Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds*** ***(by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***
OS-1-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: 110[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 3.5 Trichloroethene: 2.7 ND (all other)
OS-2-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.4 ND (all other)
OS-3-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: 220[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
OS-5-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: ND (<150) Motor Oil: ND (<750) (elevated D(x) detection limits due to limited sample volume)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
OS-6-GW	8/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: 1.1 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
OS-7-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: 84[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)

TABLE 2 (Continued)
Summary of Off-Site Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Date***	***Laboratory Analytical Results (ug/l)***		
		Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds*** ***(by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***
OS-8-GW	4/5/2017	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
OS-9-GW	4/5/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
OS-12-GW	8/3/2017	Gasoline Range: ND (<100) Diesel: 290[x] Motor Oil: ND (<250)	Benzene: 0.5 Toluene: 2.5 Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)
Washington State MTCA Groundwater Cleanup Criteria (ug/l)		***Gasoline: 800 (Benzene is present)*** ***Diesel or Motor Oil: 500 (combined)***	***Benzene: 5*** ***Toluene: 1,000*** ***Ethylbenzene: 700*** ***Xylenes: 1,000***	***cs-1,2-Dichloroethene: 16*** ***Trichloroethene: 5*** ***Other compounds vary***

Table 2 Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G.
Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).
[x] - Indicates sample chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons or organic material.
BTEX compounds and other volatile organic compounds by EPA Method 8260C. All detected compounds summarized here. See laboratory report for full list of analyzed parameters.

MTCA Groundwater cleanup criteria per Chapter 173-340-720 WAC. Method A criteria presented where available. Method B standard formula values shown where no Method A criteria available. Method B standard formula values from Dept. of Ecology Cleanup Levels and Risk Calculation (CLARC) database. NV indicates no value available from CLARC.

Sample results exceeding applicable cleanup criteria are noted in ***Bold Italic***.

APPENDIX A

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.

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Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 11, 2017

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 August 3, 2017 from the 104 12th PO WES 1591, F&BI 708083 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. 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
WES0811R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 3, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 708083 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
708083 -01	OS-1-GW
708083 -02	OS-2-GW
708083 -03	OS-3-GW
708083 -04	OS-5-GW
708083 -05	OS-6-GW
708083 -06	OS-7-GW

The 8260C 2,2-dichloropropane laboratory control sample and laboratory control sample duplicate did not meet the acceptance criteria. The data were flagged accordingly.

Acetone was detected in sample OS-5-GW. The result was qualified as laboratory contamination.

All other quality control requirements were acceptable.

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083
Date Extracted: 08/07/17
Date Analyzed: 08/07/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
OS-1-GW 708083-01	<100	82
OS-2-GW 708083-02	<100	66
OS-3-GW 708083-03	<100	80
OS-5-GW 708083-04	<100	78
OS-6-GW 708083-05	<100	81
OS-7-GW 708083-06	<100	80
Method Blank 07-1621 MB	<100	75

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083
Date Extracted: 08/07/17
Date Analyzed: 08/07/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
OS-1-GW 708083-01	110 x	<250	93
OS-2-GW 708083-02	130 x	<250	86
OS-3-GW 708083-03	220 x	<250	101
OS-5-GW 708083-04 1/3	<150	<750	81
OS-6-GW 708083-05	<50	<250	90
OS-7-GW 708083-06	84 x	<250	93
Method Blank 07-1673 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-1-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-01
Date Analyzed:	08/07/17	Data File:	080714.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	3.5	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	2.7	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-2-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-02
Date Analyzed:	08/07/17	Data File:	080715.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	1.4	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-3-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-03
Date Analyzed:	08/07/17	Data File:	080716.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-5-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-04
Date Analyzed:	08/07/17	Data File:	080713.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	27 lc ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-6-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-05
Date Analyzed:	08/07/17	Data File:	080732.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	1.1	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-7-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	708083-06
Date Analyzed:	08/07/17	Data File:	080733.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591, F&BI 708083
Date Extracted:	08/07/17	Lab ID:	07-1659 mb
Date Analyzed:	08/07/17	Data File:	080712.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1 jl	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	89	82	70-119	8

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	92	63-142	4

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 708082-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	139	10-172
Chloromethane	ug/L (ppb)	50	<10	116	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	119	36-166
Bromomethane	ug/L (ppb)	50	<1	125	47-169
Chloroethane	ug/L (ppb)	50	<1	120	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	111	44-165
Acetone	ug/L (ppb)	250	77	118 b	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	106	60-136
Hexane	ug/L (ppb)	50	<1	86	52-150
Methylene chloride	ug/L (ppb)	50	<5	112	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	6.1	107	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	108	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	108	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	49	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	109	71-127
Chloroform	ug/L (ppb)	50	<1	105	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	123	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	108	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	110	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	106	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	111	56-152
Benzene	ug/L (ppb)	50	<0.35	108	76-125
Trichloroethene	ug/L (ppb)	50	<1	104	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	109	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	113	61-150
Dibromomethane	ug/L (ppb)	50	<1	108	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	117	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	72-132
Toluene	ug/L (ppb)	50	<1	99	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	96	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	104	68-131
2-Hexanone	ug/L (ppb)	250	<10	109	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	105	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	100	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	111	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	107	69-134
Chlorobenzene	ug/L (ppb)	50	<1	99	77-122
Ethylbenzene	ug/L (ppb)	50	<1	100	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	106	73-137
m,p-Xylene	ug/L (ppb)	100	<2	99	69-135
o-Xylene	ug/L (ppb)	50	<1	102	60-140
Styrene	ug/L (ppb)	50	<1	104	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	99	65-142
Bromoform	ug/L (ppb)	50	<1	118	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	95	58-144
Bromobenzene	ug/L (ppb)	50	<1	100	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	95	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	104	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	98	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	96	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	96	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	95	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	96	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	95	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	92	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	98	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	103	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	92	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	83	60-143
Naphthalene	ug/L (ppb)	50	<1	96	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	95	69-148

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 104 12th PO WES 1591, F&BI 708083

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	125	116	25-158	7
Chloromethane	ug/L (ppb)	50	110	105	45-156	5
Vinyl chloride	ug/L (ppb)	50	114	106	50-154	7
Bromomethane	ug/L (ppb)	50	127	115	55-143	10
Chloroethane	ug/L (ppb)	50	117	110	58-146	6
Trichlorofluoromethane	ug/L (ppb)	250	112	104	50-150	7
Acetone	ug/L (ppb)	250	124	118	53-131	5
1,1-Dichloroethene	ug/L (ppb)	50	104	100	67-136	4
Hexane	ug/L (ppb)	50	85	80	57-137	6
Methylene chloride	ug/L (ppb)	50	112	105	39-148	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	108	100	64-147	8
trans-1,2-Dichloroethene	ug/L (ppb)	50	108	102	68-128	6
1,1-Dichloroethane	ug/L (ppb)	50	109	101	79-121	8
2,2-Dichloropropane	ug/L (ppb)	50	45 vo	38 vo	55-143	17
cis-1,2-Dichloroethene	ug/L (ppb)	50	107	101	80-123	6
Chloroform	ug/L (ppb)	50	105	99	80-121	6
2-Butanone (MEK)	ug/L (ppb)	250	120	114	57-149	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	107	101	73-132	6
1,1,1-Trichloroethane	ug/L (ppb)	50	111	102	83-130	8
1,1-Dichloropropene	ug/L (ppb)	50	106	99	77-129	7
Carbon tetrachloride	ug/L (ppb)	50	111	104	75-158	7
Benzene	ug/L (ppb)	50	108	102	69-134	6
Trichloroethene	ug/L (ppb)	50	120	112	80-120	7
1,2-Dichloropropane	ug/L (ppb)	50	110	103	77-123	7
Bromodichloromethane	ug/L (ppb)	50	113	106	81-133	6
Dibromomethane	ug/L (ppb)	50	109	100	82-125	9
4-Methyl-2-pentanone	ug/L (ppb)	250	115	107	65-138	7
cis-1,3-Dichloropropene	ug/L (ppb)	50	100	94	82-132	6
Toluene	ug/L (ppb)	50	98	93	72-122	5
trans-1,3-Dichloropropene	ug/L (ppb)	50	92	88	80-136	4
1,1,2-Trichloroethane	ug/L (ppb)	50	101	95	75-124	6
2-Hexanone	ug/L (ppb)	250	104	99	60-136	5
1,3-Dichloropropane	ug/L (ppb)	50	104	98	76-126	6
Tetrachloroethene	ug/L (ppb)	50	99	94	76-121	5
Dibromochloromethane	ug/L (ppb)	50	108	104	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	104	99	82-125	5
Chlorobenzene	ug/L (ppb)	50	98	93	83-114	5
Ethylbenzene	ug/L (ppb)	50	99	94	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	106	100	84-127	6
m,p-Xylene	ug/L (ppb)	100	98	93	83-125	5
o-Xylene	ug/L (ppb)	50	100	96	81-121	4
Styrene	ug/L (ppb)	50	102	97	84-119	5
Isopropylbenzene	ug/L (ppb)	50	98	94	85-117	4
Bromoform	ug/L (ppb)	50	114	110	74-136	4
n-Propylbenzene	ug/L (ppb)	50	95	89	74-126	7
Bromobenzene	ug/L (ppb)	50	99	95	80-121	4
1,3,5-Trimethylbenzene	ug/L (ppb)	50	96	90	78-123	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	84	80	66-126	5
1,2,3-Trichloropropane	ug/L (ppb)	50	99	92	67-124	7
2-Chlorotoluene	ug/L (ppb)	50	96	90	77-127	6
4-Chlorotoluene	ug/L (ppb)	50	97	91	78-128	6
tert-Butylbenzene	ug/L (ppb)	50	97	90	80-123	7
1,2,4-Trimethylbenzene	ug/L (ppb)	50	96	91	79-122	5
sec-Butylbenzene	ug/L (ppb)	50	95	89	80-125	7
p-Isopropyltoluene	ug/L (ppb)	50	93	88	81-123	6
1,3-Dichlorobenzene	ug/L (ppb)	50	98	92	85-116	6
1,4-Dichlorobenzene	ug/L (ppb)	50	95	89	84-121	7
1,2-Dichlorobenzene	ug/L (ppb)	50	98	90	85-116	9
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	100	94	57-141	6
1,2,4-Trichlorobenzene	ug/L (ppb)	50	92	87	72-130	6
Hexachlorobutadiene	ug/L (ppb)	50	83	79	53-141	5
Naphthalene	ug/L (ppb)	50	96	89	64-133	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	89	65-136	7

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. 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 compound 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. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. 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.

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.

708083

SAMPLE CHAIN OF CUSTODY

ME 08/03/17 VW2/ EO4

Page # 1 of 1

Report To Tom Ladd

Company Hart Crowser Env. Services

Address 616 6th Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-525-3600 Email

SAMPLERS (*signature*)

PROJECT NAME: 104 12th

PO # 0055 1591

REMARKS

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
05-1-60	01A-D	8:3	AM	water	4		X	X		X							
05-2-60	02				4		X	X		X							
05-3-60	03				4		X	X		X							
05-5-60	04AB				2		X	X		X							
05-6-60	05A-D				4		X	X		X							
05-7-60	06				4		X	X		X							

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:			8/3/17	5:17
Received by:	TOM LADD	FBI	08-03-17	5:17
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Eric Young, B.S.

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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 16, 2017

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 August 7, 2017 from the 104 12th Off-Site PO WES 1591A, F&BI 708126 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. 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
WES0816R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 7, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th Off-Site PO WES 1591A, F&BI 708126 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
708126 -01	OS-1-12'
708126 -02	OS-2-7.5'
708126 -03	OS-2-11'
708126 -04	OS-3-12'
708126 -05	OS-4-6'
708126 -06	OS-4-9'
708126 -07	OS-5-7'
708126 -08	OS-5-14'
708126 -09	OS-6-7'
708126 -10	OS-6-10'
708126 -11	OS-7-8'
708126 -12	OS-7-12'
708126 -13	OS-7-16'
708126 -14	OS-8-7'
708126 -15	OS-8-17'
708126 -16	OS-8-GW
708126 -17	OS-9-GW
708126 -18	OS-12-GW

The 8260C calibration standard failed the acceptance criteria for trichlorofluoromethane. The data were flagged accordingly.

Methylene chloride in the 8260C laboratory control sample exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126
Date Extracted: 08/08/17
Date Analyzed: 08/08/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 53-144)
OS-1-12' 708126-01	ND	ND	ND	84
OS-2-7.5' 708126-02	ND	ND	ND	80
OS-2-11' 708126-03	ND	ND	ND	77
OS-3-12' 708126-04	ND	ND	ND	76
OS-4-6' 708126-05	ND	ND	ND	76
OS-5-7' 708126-07	ND	ND	ND	73
OS-6-10' 708126-10	ND	ND	ND	89
OS-7-8' 708126-11	ND	ND	ND	86
OS-8-7' 708126-14	ND	ND	ND	77
Method Blank 07-1698 MB	ND	ND	ND	79

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126
Date Extracted: 08/09/17
Date Analyzed: 08/10/17 and 08/11/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
OS-4-9' 708126-06	<2	94
OS-5-14' 708126-08	<2	102
OS-6-7' 708126-09	<2	102
OS-7-12' 708126-12	<2	102
OS-7-16' 708126-13	2.5	104
OS-8-17' 708126-15	<2	103
Method Blank 07-1687 MB2	<2	101

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126
Date Extracted: 08/09/17
Date Analyzed: 08/09/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
OS-8-GW 708126-16	<100	106
OS-9-GW 708126-17	<100	100
OS-12-GW 708126-18	<100	103
Method Blank 07-1685 MB	<100	98

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126
Date Extracted: 08/08/17
Date Analyzed: 08/08/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
OS-8-GW 708126-16	66 x	<250	101
OS-9-GW 708126-17	<50	<250	103
OS-12-GW 708126-18	290 x	<250	103
Method Blank 07-1697 MB	<50	<250	90

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-8-GW	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-16
Date Analyzed:	08/09/17	Data File:	080938.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1 ca	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-9-GW	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-17
Date Analyzed:	08/09/17	Data File:	080939.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1 ca	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-12-GW	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-18
Date Analyzed:	08/09/17	Data File:	080940.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1 ca	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	0.50	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	2.5	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	07-1665 mb
Date Analyzed:	08/09/17	Data File:	080908.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	98	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-4-9'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-06
Date Analyzed:	08/11/17	Data File:	081042.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-5-14'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-08
Date Analyzed:	08/11/17	Data File:	081043.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-6-7'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-09
Date Analyzed:	08/11/17	Data File:	081044.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-7-12'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-12
Date Analyzed:	08/11/17	Data File:	081045.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-7-16'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-13
Date Analyzed:	08/11/17	Data File:	081046.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	OS-8-17'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	708126-15
Date Analyzed:	08/10/17	Data File:	080950.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	98	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th Off-Site PO WES 1591A
Date Extracted:	08/09/17	Lab ID:	07-1666 mb
Date Analyzed:	08/09/17	Data File:	080909.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	98	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 708065-06 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	61-153

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 708126-16 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	94	69-134

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	91	96	61-133	5

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 708139-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	118	55-137
Chloromethane	ug/L (ppb)	50	<10	102	61-120
Vinyl chloride	ug/L (ppb)	50	<0.2	98	61-139
Bromomethane	ug/L (ppb)	50	<1	109	20-265
Chloroethane	ug/L (ppb)	50	<1	94	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	84	71-128
Acetone	ug/L (ppb)	250	<10	88	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	85	71-123
Hexane	ug/L (ppb)	50	<1	92	44-139
Methylene chloride	ug/L (ppb)	50	<5	104	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	91	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	94	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	93	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	86	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	97	63-126
Chloroform	ug/L (ppb)	50	<1	97	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	95	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	90	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	83	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	96	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	87	70-132
Benzene	ug/L (ppb)	50	<0.35	98	75-114
Trichloroethene	ug/L (ppb)	50	<1	96	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	98	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	95	78-117
Dibromomethane	ug/L (ppb)	50	<1	96	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	100	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	76-120
Toluene	ug/L (ppb)	50	<1	94	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	97	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	95	81-116
2-Hexanone	ug/L (ppb)	250	<10	90	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	98	80-113
Tetrachloroethene	ug/L (ppb)	50	2.9	102	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	94	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	96	79-120
Chlorobenzene	ug/L (ppb)	50	<1	100	75-115
Ethylbenzene	ug/L (ppb)	50	<1	96	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	94	76-130
m,p-Xylene	ug/L (ppb)	100	<2	98	63-128
o-Xylene	ug/L (ppb)	50	<1	96	64-129
Styrene	ug/L (ppb)	50	<1	98	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	96	74-122
Bromoform	ug/L (ppb)	50	<1	93	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	97	65-129
Bromobenzene	ug/L (ppb)	50	<1	102	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	99	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	96	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	96	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	97	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	102	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	96	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	98	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	99	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	100	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	97	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	83	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	96	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	96	53-136
Naphthalene	ug/L (ppb)	50	<1	95	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	96	59-130

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	124	124	50-157	0
Chloromethane	ug/L (ppb)	50	105	106	62-130	1
Vinyl chloride	ug/L (ppb)	50	101	102	70-128	1
Bromomethane	ug/L (ppb)	50	109	111	62-188	2
Chloroethane	ug/L (ppb)	50	96	98	66-149	2
Trichlorofluoromethane	ug/L (ppb)	50	79	87	70-132	10
Acetone	ug/L (ppb)	250	90	93	44-145	3
1,1-Dichloroethene	ug/L (ppb)	50	82	81	75-119	1
Hexane	ug/L (ppb)	50	88	90	51-153	2
Methylene chloride	ug/L (ppb)	50	101	104	63-132	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	91	93	70-122	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	95	96	76-118	1
1,1-Dichloroethane	ug/L (ppb)	50	93	94	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	74	74	62-141	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	95	97	76-119	2
Chloroform	ug/L (ppb)	50	96	98	78-117	2
2-Butanone (MEK)	ug/L (ppb)	250	98	101	49-147	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	90	92	78-114	2
1,1,1-Trichloroethane	ug/L (ppb)	50	84	85	80-116	1
1,1-Dichloropropene	ug/L (ppb)	50	96	98	78-119	2
Carbon tetrachloride	ug/L (ppb)	50	87	88	72-128	1
Benzene	ug/L (ppb)	50	96	98	75-116	2
Trichloroethene	ug/L (ppb)	50	99	101	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	97	98	79-121	1
Bromodichloromethane	ug/L (ppb)	50	95	97	76-120	2
Dibromomethane	ug/L (ppb)	50	97	98	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	102	105	54-153	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	97	100	76-128	3
Toluene	ug/L (ppb)	50	94	95	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	94	96	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	96	96	78-120	0
2-Hexanone	ug/L (ppb)	250	94	94	49-147	0
1,3-Dichloropropane	ug/L (ppb)	50	99	100	81-115	1
Tetrachloroethene	ug/L (ppb)	50	103	102	78-109	1
Dibromochloromethane	ug/L (ppb)	50	95	95	63-140	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	98	98	82-118	0
Chlorobenzene	ug/L (ppb)	50	99	101	80-113	2
Ethylbenzene	ug/L (ppb)	50	96	96	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	93	94	76-125	1
m,p-Xylene	ug/L (ppb)	100	98	99	84-112	1
o-Xylene	ug/L (ppb)	50	96	96	81-117	0
Styrene	ug/L (ppb)	50	98	99	83-121	1
Isopropylbenzene	ug/L (ppb)	50	96	96	81-122	0
Bromoform	ug/L (ppb)	50	93	94	40-161	1
n-Propylbenzene	ug/L (ppb)	50	97	98	81-115	1
Bromobenzene	ug/L (ppb)	50	102	102	80-113	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	99	83-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	93	98	79-118	5
1,2,3-Trichloropropane	ug/L (ppb)	50	96	94	74-116	2
2-Chlorotoluene	ug/L (ppb)	50	95	97	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	97	98	80-116	1
tert-Butylbenzene	ug/L (ppb)	50	101	102	81-119	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	96	96	81-121	0
sec-Butylbenzene	ug/L (ppb)	50	98	99	83-123	1
p-Isopropyltoluene	ug/L (ppb)	50	98	98	81-122	0
1,3-Dichlorobenzene	ug/L (ppb)	50	100	100	80-115	0
1,4-Dichlorobenzene	ug/L (ppb)	50	98	99	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	96	97	79-115	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	82	83	62-133	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	95	94	75-119	1
Hexachlorobutadiene	ug/L (ppb)	50	96	95	70-116	1
Naphthalene	ug/L (ppb)	50	94	95	72-131	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	95	74-122	0

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 708079-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	36	33	10-56	9
Chloromethane	mg/kg (ppm)	2.5	<0.5	61	58	10-90	5
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	61	59	10-91	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	70	69	10-110	1
Chloroethane	mg/kg (ppm)	2.5	<0.5	68	66	10-101	3
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	51	48	10-95	6
Acetone	mg/kg (ppm)	12.5	<0.5	84	82	11-141	2
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	67	63	22-107	6
Hexane	mg/kg (ppm)	2.5	<0.25	67	64	10-95	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	92	90	14-128	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	85	85	17-134	0
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	81	13-112	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	85	84	23-115	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	73	73	18-117	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	90	89	25-120	1
Chloroform	mg/kg (ppm)	2.5	<0.05	91	90	29-117	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	93	91	20-133	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	86	85	22-124	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	77	76	27-112	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	87	84	26-107	4
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	77	75	28-126	3
Benzene	mg/kg (ppm)	2.5	<0.03	89	88	26-114	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	91	90	30-112	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	91	91	31-119	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	87	87	31-131	0
Dibromomethane	mg/kg (ppm)	2.5	<0.05	92	89	27-124	3
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	97	94	16-147	3
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	92	92	28-137	0
Toluene	mg/kg (ppm)	2.5	<0.05	90	89	34-112	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	90	88	30-136	2
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	93	91	32-126	2
2-Hexanone	mg/kg (ppm)	12.5	<0.5	90	88	17-147	2
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	95	95	29-125	0
Tetrachloroethene	mg/kg (ppm)	2.5	0.029	98	96	25-114	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	87	87	32-143	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	93	93	32-126	0
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	96	95	37-113	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	93	92	34-115	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	88	88	35-126	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	94	94	25-125	0
o-Xylene	mg/kg (ppm)	2.5	<0.05	93	92	27-126	1
Styrene	mg/kg (ppm)	2.5	<0.05	95	94	39-121	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	92	92	34-123	0
Bromoform	mg/kg (ppm)	2.5	<0.05	84	83	18-155	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	93	93	31-120	0
Bromobenzene	mg/kg (ppm)	2.5	<0.05	97	97	40-115	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	93	94	24-130	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	91	92	27-148	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	92	90	33-123	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	91	92	39-110	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	93	93	39-111	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	96	96	36-116	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	91	35-116	0
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	93	94	33-118	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	94	94	32-119	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	96	96	38-111	0
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	95	95	39-109	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	94	40-111	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	78	78	47-127	0
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	93	94	31-121	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	94	96	24-128	2
Naphthalene	mg/kg (ppm)	2.5	<0.05	90	91	24-139	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	93	35-117	1

Date of Report: 08/16/17
Date Received: 08/07/17
Project: 104 12th Off-Site PO WES 1591A, F&BI 708126

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	54	10-76
Chloromethane	mg/kg (ppm)	2.5	76	34-98
Vinyl chloride	mg/kg (ppm)	2.5	77	42-107
Bromomethane	mg/kg (ppm)	2.5	82	46-113
Chloroethane	mg/kg (ppm)	2.5	78	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	66	53-112
Acetone	mg/kg (ppm)	12.5	92	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	76	65-110
Hexane	mg/kg (ppm)	2.5	77	55-107
Methylene chloride	mg/kg (ppm)	2.5	134 vo	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	93	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	94	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	94	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	70	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	98	73-110
Chloroform	mg/kg (ppm)	2.5	99	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	100	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	94	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	86	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	96	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	86	67-123
Benzene	mg/kg (ppm)	2.5	98	72-106
Trichloroethene	mg/kg (ppm)	2.5	104	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	99	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	94	75-126
Dibromomethane	mg/kg (ppm)	2.5	98	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	103	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	71-138
Toluene	mg/kg (ppm)	2.5	97	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	94	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	97	77-116
2-Hexanone	mg/kg (ppm)	12.5	94	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	103	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	106	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	94	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	77-117
Chlorobenzene	mg/kg (ppm)	2.5	103	76-109
Ethylbenzene	mg/kg (ppm)	2.5	99	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	96	76-125
m,p-Xylene	mg/kg (ppm)	5	101	77-115
o-Xylene	mg/kg (ppm)	2.5	99	76-115
Styrene	mg/kg (ppm)	2.5	101	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	99	76-120
Bromoform	mg/kg (ppm)	2.5	91	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	99	77-115
Bromobenzene	mg/kg (ppm)	2.5	105	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	100	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	92	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	96	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	99	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	100	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	105	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	100	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	101	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	103	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	85	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	99	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	74-130
Naphthalene	mg/kg (ppm)	2.5	98	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	100	75-117

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. 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 compound 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. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. 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.

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.

708126
[redacted]

SAMPLE CHAIN OF CUSTODY

ME 08/07/17 VS1/YW3/ZE03

Page # 1 of 2 [redacted]

Report To: [illegible]
Company: [illegible] Env. Services
Address: [illegible] Ave NE
City, State, ZIP: Seattle WA 981[illegible]
Phone: [illegible]-523-[illegible] Email

SAMPLERS (*signature*)	
PROJECT NAME: 104 / 12th Offsite	PO #: WES 1591A
REMARKS	INVOICE TO

TURNAROUND TIME
☑ Standard Turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
05-1-12'	01	8-3		Soil	1	X											Follow up on any HCID detections please
05-2-7.5'	02	↓		↓	1	X											
05-2-11'	03				1	X											
05-3-12'	04				1	X											
05-4-6'	05				1	X				~~X~~							
05-4-9'	06 A-D				4			X		X							
05-5-7'	07				1	X				~~X~~							
05-5-14'	08 A-D				4			X		X							
05-6-7'	09 A-D				4			X		X							
05-6-10'	10				1	X											

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	8-7-17	5:10
Received by: [signature]	Matt Langston	FBI[illegible]	8/7/17	1710
Relinquished by:				
Received by:		Samples received at 4 °C		

708126 [redacted]

SAMPLE CHAIN OF CUSTODY ME 08/07/17

VS1/ VW3/ E03

Page # 2 of 2

Report To Dan Cotham

Company Cotham Env. Services

Address 6817 16th Ave NE

City, State, ZIP Seattle WA 98115

Phone 206-523-3485 Email

SAMPLERS (*signature*) [redacted]

PROJECT NAME 104 / 12th Offsite

PO # CES 1591A

REMARKS

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
ANALYSES REQUESTED																	
05-7-8	11	8-3		Soil	1	X											Hert Follow up PL058
05-7-12	12 A-D	"		"	4			X		X							
05-7-16	13 A-D	"		"	4			X		X							
05-8-7'	14	8-4		"	1	X											
05-8-17'	15 A-D	"		"	4			X		X							
05-8-GW	16 A-D	"		Water	4		X	X		X							
05-9-GW	17 A-D	"		"	4		X	X		X							
05-12-GW	18 A-C	"		"	3		X	X		X							

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]		CES	8/7/17	5:10
Received by: [signature]	Matt Langston	FBI	8/7/17	1710
Relinquished by:				
Received by:		Samples received at 4 °C		

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

August 21, 2017

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

Dear Mr Whitman:

Included are the amended results from the testing of material submitted on August 11, 2017 from the 104 12th PO WES 1591, F&BI 708215 project. The sample IDs have been corrected.

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
WES0821R.DOC

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

August 21, 2017

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 August 11, 2017 from the 104 12th PO WES 1591, F&BI 708215 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. 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
WES0821R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 11, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 708215 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
708215 -01	OS-9-14'
708215 -02	OS-10-6'
708215 -03	OS-10-10'
708215 -04	OS-11-9'
708215 -05	OS-11-11'
708215 -06	OS-12-13'
708215 -07	OS-12-16'

A motor oil range product was detected in the NWTPH-HCID analysis of sample OS-11-11'. The follow up NWTPH-Dx analysis did not detect the presence of a motor oil range product. The discrepancy was possibly due to sample inhomogeneity.

All quality control requirements were acceptable.

Date of Report: 08/21/17
Date Received: 08/11/17
Project: 104 12th PO WES 1591, F&BI 708215
Date Extracted: 08/11/17
Date Analyzed: 08/11/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 48-168)
OS-9-14' 708215-01	ND	ND	ND	107
OS-10-6' 708215-02	ND	ND	ND	109
OS-10-10' 708215-03	ND	ND	ND	108
OS-11-9' 708215-04	ND	ND	ND	109
OS-11-11' 708215-05	ND	ND	D	123
OS-12-13' 708215-06	ND	ND	ND	106
OS-12-16' 708215-07	ND	ND	ND	108
Method Blank 07-1730 MB	ND	ND	ND	111

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 08/21/17
Date Received: 08/11/17
Project: 104 12th PO WES 1591, F&BI 708215
Date Extracted: 08/16/17
Date Analyzed: 08/16/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
OS-11-11' 708215-05 1/0.1	<5	<25	108
Method Blank 07-1778 MB	<5	<25	89

Date of Report: 08/21/17
Date Received: 08/11/17
Project: 104 12th PO WES 1591, F&BI 708215

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 708215-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	500	<50	92	94	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	500	93	79-144

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. 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 compound 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. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. 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.

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.

708215

SAMPLE CHAIN OF CUSTODY ME 8/11/17 E03

Report To Tom Whitman

Company Whitman Env. Sciences

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-523-8805 Email

SAMPLERS (*signature*)	
PROJECT NAME 104 12TH	PO # WES 1591
REMARKS	INVOICE TO

Page # ____ of ____

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

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B5-9-14'	01	8-4		Soil	1	X											Follow up on detections please.
B5-10-6'	02	↓		↓	↓	X											
B5-10-10'	03					X											
B5-11-9'	04					X											
B5-11-11'	05					X	⊗										
B5-12-13'	06					X											⊗-per DW COC
B5-12-16'	07	↓		↓	↓	X											8/14/17 ms

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	[signature]	WES	8-11-17	12:25
Received by: [signature]	Nhan Phan	FBI	8/11/17	12:25
Relinquished by:				
Received by:				

Samples received at 25 °C