PBS | Engineering + Environmental

Preliminary Site Characterization Report

Coleman Oil Company
1 East I Street
Yakima, Washington

Ecology ERTS: 663825
PBS Project No. 41392.000

Prepared for:
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August 2016

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EXECUTIVE SUMMARY

PBS Engineering and Environmental Inc. (PBS) has completed a Preliminary Site Characterization Investigation at the Coleman Oil facility, located at 1 East I Street in Yakima, Washington (property). The property is currently developed as a petroleum storage and active fueling facility. This report summarizes the work performed at the site, and presents the results of the investigation and PBS' conclusions and recommendations.

On March 21, 2016, on site personnel noted what appeared to be fuel product seeping to the surface through a crack in the asphalt (<1-gallon). This observation was made when diesel fuel was being pumped through a subsurface line beneath that location. The following actions were undertaken at the time by on site personnel:

- Ceased pumping fuel through the line.
- Mopped up fuel product on the surface using absorptive pads from the spill kit.
- Removed asphalt and overburden soil from on top of the line (pipe run is approximately 1-foot below grade).
- Observed and plugged the hole in the line.
- Excavated impacted soil in the vicinity and approximately two to three feet below the breached fuel line.
- Stockpiled impacted soil (approximately seven cubic yards) on plastic sheeting and covered with plastic sheeting.

Visual observation of fuel product, in context with impacted soil and the breached fuel line, constitutes a confirmed release. As such, a Site Assessment is not required per *Guidance for Site Checks and Site Assessments for Underground Storage Tanks* (Ecology 1991). Coleman Oil personnel reported the release to Ecology within 24 hours per Washington Administrative Code (WAC) 173-340-300. The Department of Ecology (Ecology) assigned Environmental Report Tracking System (ERTS) number 663825 to the release.

Site characterization and interim actions conducted since the time of the release include the following:

- Initial response to stop continued release of fuel product.
- Petroleum contaminated soil (PCS) excavation and off-site disposal.
- Installation of groundwater monitoring wells and subsequent groundwater sampling.
- Fuel product removal from groundwater surface

Summary of Findings

A summary of the pertinent findings of the Preliminary Site Characterization Report are presented below:

- A release of a diesel product to the subsurface from a shallow pipe (approximately 1-foot deep) was confirmed through visual observation and reported to Ecology on March 21, 2016.

- Petroleum contaminated soil (PCS) removal conducted on March 23 and 30, 2016 included the excavation and off-site disposal of approximately 212 tons of material. PCS removal is considered to be complete to the north, east and south.

  The sample collected from soil/groundwater interface, at approximately 18-feet bgs, had contaminant concentrations in exceedence of the adopted cleanup criteria. However, the excavation continued beneath the groundwater table to approximately 20-feet bgs. As infiltrating diesel fuel is lighter than water its vertical extent is expected to be 18-19 feet bgs. PCS removal is considered to be complete in the vertical direction.

  PCS removal is not considered to be complete in the western direction. The sample collected from the western sidewall of the excavation had contaminant concentrations in exceedence of the adopted cleanup criteria. Further excavation in this direction was not undertaken due to the possibility of destabilizing a structure. However, based on the geometry of the contaminant plume observed and removed in the other three directions, the total volume of PCS left in place is considered to be minimal and isn't likely to extend more than three feet to the west.

- The groundwater investigation conducted on site in May 2016 included the installation of three monitoring wells outside the limits of the excavation (MW1- MW3) and one recovery well (RW1) located beneath the point of release. Approximately 4.5 feet of diesel product was initially observed in RW1 and MW3 (south of the excavation). Petroleum hydrocarbon contaminants exceed the adopted Cleanup Criteria in both MW1 (north of excavation) and MW2 (east of excavation).

- Interim Action: diesel fuel removal from RW1 has included eight removal events for a total removal of 50 gallons. The thickness of product in RW1 was last measured at 2.5 feet on August 5, 2016.

1.0 INTRODUCTION

PBS Engineering and Environmental Inc. (PBS) has completed a Preliminary Site Characterization Investigation at the Coleman Oil facility, located at 1 East I Street in Yakima, Washington (property). The property is currently developed as a petroleum storage and active fueling facility. This report summarizes the work performed at the site, and presents the results of the investigation and PBS' conclusions and recommendations.

1.1 Site Description and Topography

The site is located in the northeast quarter of Section 13, Township 13 North, Range 18 East of the Willamette Base and Meridian (W.M.) (Figure 1). The site is currently developed as a petroleum storage and active fueling facility, located in an industrial and commercial area of Yakima. The site is generally flat (Refer to Figure 2 for site layout).

1.2 Site Ownership

Based on the Yakima County Assessor's report the site has been owned by Carol Jean Wondrack since February 2010. The current property use is 51 Wholesale Trade.

2.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

The site is located in the Yakima Valley, which lies within the central portion of the Columbia River Plateau physiographic province. This province is comprised of a series of flood basalts covering much of central and eastern Washington. The basalt flows of the Columbia River Basalt Group (CRBG) are late Miocene Epoch and early Pliocene Epoch (between 17 and 6 million years ago) in age, forming an extensive volcanic plateau. The Yakima Valley lies between anticlinal ridges that generally trend east-west as part of the Yakima Fold Belt; which consists of basaltic lava flows that have faulted and folded from the late Tertiary to the present. Glacial outwash and river-deposited silt, sand and gravel deposits overlie the Columbia River Basalt.

According to the Geologic Map of Washington – Southwest Quadrant (Washington Division of Geology and Earth Resources, 2002), 1:250,000 scale, the site is underlain by Quaternary aged terraced sediments such as sand, silt and gravel of diverse positions and origins, such as proglacial outwash, glacial outburst deposits, older alluvium, lahars and uplifted marine and estuarine deposits.

The closest surface water to the site is the Yakima River, located approximately one mile to the north. The inferred groundwater flow is anticipated to be in a northeasterly direction.

3.0 SITE DISCOVERY AND INITIAL RESPONSE

On March 21, 2016, on site personnel noted what appeared to be fuel product seeping to the surface through a crack in the asphalt (<1-gallon). This observation was made when diesel fuel was being pumped through a subsurface line beneath that location. The following actions were undertaken at the time by on site personnel:

- Ceased pumping fuel through the line.
- Mopped up fuel product on the surface using absorptive pads from the spill kit.
- Removed asphalt and overburden soil from on top of the line (pipe run is approximately 1-foot below grade).
- Observed and plugged the hole in the line.

- Excavated impacted soil in the vicinity and approximately two to three feet below the breached fuel line.

- Stockpiled impacted soil (approximately seven cubic yards) on plastic sheeting and covered with plastic sheeting.

Visual observation of fuel product, in context with impacted soil and the breached fuel line, constitutes a confirmed release. As such, a Site Assessment is not required per *Guidance for Site Checks and Site Assessments for Underground Storage Tanks* (Ecology 1991). Coleman Oil personnel reported the release to Ecology within 24 hours per Washington Administrative Code (WAC) 173-340-300. The Department of Ecology (Ecology) assigned Environmental Report Tracking System (ERTS) number 663825 to the release.

4.0 SITE INVESTIGATION AND INTERIM ACTIONS

4.1 Soil Excavation

Coleman Oil contracted with PBS and Able Clean-up Technologies, Inc. (ACT) to provide Interim Remedial Action at the release site. On March 21, 2016 ACT filed a public utility notification request. PBS and ACT mobilized to the site on March 23, 2016. Prior to beginning excavation work a private utility locates company conducted clearance for subsurface obstructions. A site-specific health and safety plan (HASP) was prepared and reviewed with all field personnel prior to beginning work. This Interim Action is summarized as follows:

- The excavation expanded to a pit that was approximately 8' x 8'x 5' deep.
- Approximately eight additional cubic yards (15 cubic yards total) were removed from the excavation and stockpiled on site.
- Soil sampling for waste characterization for off-site disposal approval was conducted.
- Field screening (odor, visual observation, photoionization detector [PID]) indicated the extent of impacted soil was not delineated vertically or laterally.
- Soil samples were collected from the base of the excavation and the north and west sidewalls.
- An underground storage tank (UST) was encountered within the excavation area along the south sidewall (Refer Section 4.2 Heat Oil Tank Removal).

Preliminary analytical results from samples collected from the sidewalls and base of the excavation indicated soil impacted by diesel fuel was not delineated in any direction and remained at concentrations ranging from 11,000 to 34,000 milligrams per kilogram (mg/kg).

Soil analytical results are presented in Table 1. Figure 3 presents the approximate location of the excavations.

4.2 Heat Oil UST Removal

Prior to underground storage tank (UST) removal, ACT pumped approximately 80 gallons of what appeared to be heat oil and sludge. On March 27, 2016 Able Clean-up Technologies, Inc. (ACT) of Spokane, Washington removed the UST from the ground and temporarily stored it on site in the contaminated soil containment area (Refer to Figure 3 – Site Plan: Soil Excavation). The heat oil UST had not been in use for several years prior to the removal action.

The UST contents were stored on site in two 50-gallon steel drums. It is understood that this waste material will be disposed of to an appropriately licensed contractor/facility at a later date by Coleman Oil.

Based on the findings of the UST investigation, the soil contamination identified in the vicinity of the UST are related to the nearby diesel fuel release and do not indicate a release from the heat oil UST, based on the following:

- The presence of diesel range and low levels of gasoline range petroleum hydrocarbons and volatiles indicate a fresh release. This petroleum signature is consistent with that identified during the diesel release investigation and is not consistent with a release of weathered heat oil.

- The heat oil tank was inspected after removal and was found to be in fair condition. No perforations were observed.

The heat oil UST decommissioning was detailed in a report titled UST Removal, dated May 11, 2016. The report was submitted to Coleman Oil.

4.3 Additional Soil Excavation

Representative soil analytical results were sent to an Environmental Health Specialist at the Yakima Health District (YHD). YHD approved the disposal of petroleum contaminated soil (PCS) to the Anderson Rock and Demolition Pits facility (Anderson) in Yakima, Washington.

On March 30th, 2016 PBS oversaw the additional PCS excavation by ACT. The excavation was roughly square in shape and approximately 20 - 25 feet length of sidewalls and approximately 20 feet deep (Refer to Figure 3 – Site Plan: Soil Excavation and Figure 5: Cross-Section).

A total of 212.15 tons of PCS was disposed of to Anderson. The YHD PCS disposal approval letter and the PCS disposal documentation are presented in Appendix A.

4.4 Drilling Investigation and Monitoring Well Installation

A subsurface investigation and well installation to help determine the degree and extent of the fuel release was conducted on April 27 and 28, 2016.

Prior to beginning the drilling investigation, PBS filed a public utility notification request. On April 7, 2016, PBS supervised a private utility locates company, Geophysical Survey of Kennewick, WA, while they conducted borehole clearance for subsurface obstructions. PBS was on-site April 27 and 28, 2016 to conduct the drilling investigation, with Holt Services of Puyallup, Washington providing the drilling services.

The drilling and sampling program was comprised of the advancement of three monitoring wells (MW1 to MW3) and one recovery well (RW1). The monitoring wells were advanced to a maximum of 25 feet, with 2 inch casing diameter and 10 foot screen. RW1 was advanced to 30 feet, with a 4 inch casing diameter and 15 foot screen (Refer to Figure 4: Site Plan for well locations).

During the advancement of boreholes, soil was screened for volatiles using a hand-held PID. Cursory PID readings were taken along the runs of soil as they were brought to the surface. PID readings were also taken from select soil intervals by partially filling a sealable plastic bag and taking headspace readings within the bag. Volatiles were not detected in soil until the depth approaching the water table was reached. PID readings as high as 1,200 parts per million (ppm) were detected at groundwater depth.

In all borings, soils were logged continuously, noting grain size, density, color, odor, and moisture. Boring logs describing the subsurface lithology, sample depths, and PID readings are presented in Appendix B.

4.5 Groundwater Sampling

On May 10, 2016 PBS was on site to sample the four groundwater wells (MW1 to MW3 and RW1). Well locations are presented on Figure 4 – Site Plan.

Monitoring well information is summarized as follows:

Monitoring Well Construction Summary

Monitoring Well Identification	Screened Interval (feet bgs)	Well Depth (feet bgs)
MW1	14.9 – 24.9	24.9
MW2	15.3 – 25.3	25.3
MW3	14.0 – 24.0	24.0
RW1	15.05 – 30.05	30.05

Prior to sampling the wells were gauged using an interface probe. Static water levels (SWLs) ranged from 19.13 feet below top of casing (fbTOC) in MW1 to 19.18 fbTOC in MW2. Light, non-aqueous phase liquid (LNAPL), in the form of diesel product, was identified in RW1 (4.2 feet thickness) and in MW3 (4.7 feet thickness). RW1 and MW3 were not sampled due to the presence of LNAPL.

Groundwater purging and sampling was conducted at MW1 and MW2 using a peristaltic pump, employing low flow sampling methodology with pumping rates not exceeding 0.20 liters/minute and creating minimal drawdown in the well. Groundwater field parameters (conductivity, pH, temperature, dissolved oxygen and oxidation-reduction potential) were recorded during purging using a YSI Model 556MSP water-quality analyzer equipped with a flow-through cell.

Once groundwater parameters stabilized, which indicates groundwater is representative of the aquifer formation and is not well column water, a sample was collected. PBS personnel wore new disposable nitrile gloves when collecting samples. Detailed groundwater sampling information is presented in Appendix C - Groundwater Sampling Forms.

All samples were collected in laboratory-supplied containers, placed on ice in a cooler and transported Friedman and Bruya Laboratory in Seattle, Washington, within specified holding times and under chain-of-custody documentation. Analyses were conducted under a 5-day turnaround time and included the following:

- Gasoline range Total Petroleum Hydrocarbons (TPH) by method NWTPH-Gx
- Diesel range TPHs by method NWTPH-Dx
- Benzene, toluene, ethylbenzene and xylenes by EPA method 8021
- Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270D SIM

4.6 Diesel Product Removal

With guidance from PBS, on-site staff have conducted diesel product removal events using a peristaltic pump. From May 10 – August 5, 2016, eight product removal events have been undertaken at the RW1 location. An approximate cumulative of 50 gallons of product has been pumped and stored in an on-site 280 gallon tote. The product thickness in RW1 has decreased from approximately 5 feet to 2.5 feet.

A summary of diesel product thickness and removal is presented in Appendix D.

5.0 INVESTIGATION-DERIVED WASTES

Gloves, tubing and other disposable field supplies were disposed of as solid waste. Soil cuttings, purged groundwater and decontamination water were placed in 55-gallon drums, which are sealed, labeled and stored on site.

6.0 APPLICABLE REGULATIONS AND CLEANUP STANDARDS

Contaminated site assessment and cleanup is conducted under the Model Toxic Control Act (MTCA, Chapter 70.105D Revised Code of Washington [RCW]). Chapter 173-340 of the Washington Administrative Code (WAC) provides a workable process for MTCA to accomplish effective and expeditious cleanups in a manner that protects human health and the environment. The MTCA Cleanup Regulation includes a two-step process for establishing site cleanup requirements: 1) setting cleanup standards and 2) selecting remedies.

Site assessment and cleanup (if applicable) has been and will continue to be performed under MTCA. This section summarizes the cleanup standards established for this site.

6.1 Soil and Groundwater Cleanup Standards

In accordance with MTCA, development of preliminary cleanup levels includes identifying potential exposure pathways for human and ecological impacts based on the planned land use. MTCA provides for three methods (Method A, B or C) for establishing cleanup standards. Method A (unrestricted land use) is typically used as the default standard levels. Method B and C are used when developing site-specific cleanup levels.

Considering the current land use and unknown potential future land use, MTCA level A Cleanup Levels are adopted at this time. Method A cleanup levels for soil and groundwater are presented in Tables 1 and 2, along with the contaminant concentrations.

7.0 FINDINGS

7.1 Soil and Groundwater Field Observations

A typical subsurface profile encountered on site is presented below:

Typical Subsurface Profile

Classification	Description	Approximate Depth Range (feet bgs)
Fill	Loose dark grey gravel (GP) with sand; non-plastic; medium sand; subangular fine gravel; moist no odor	0.0 to 9.0
Sand	Loose grey sand (SM) with silt, gravel and cobbles; medium sand; subrounded coarse gravel; moist; no odor	9.0 to 30.0
Groundwater		19.0

Graphic boring logs are provided in Appendix B.

7.2 Groundwater Analytical Results

Results of groundwater sample analysis indicated levels exceed the MTCA Cleanup Levels for a combination of gasoline, diesel, BTEX and naphthalene in groundwater samples collected on site. A summary of the contaminant levels are presented below:

Groundwater Sample Exceedance Summary

Sample ID	Contaminant Exceeds the MTCA cleanup levels
MW1	TPH-Gx, TPH-Dx, BTEX
MW2	TPH-Dx

In addition to the analytes mentioned in the table above, naphthalene was detected in MW1, albeit below the adopted cleanup levels. TPH-Gx and ethylbenzene were detected in MW2, albeit below the adopted cleanup levels.

It is noted that the presence of gasoline range hydrocarbons and volatiles are normal in a fresh diesel product and their presence does not represent the release of another fuel product.

Groundwater analytical results are presented in Table 4. A copy of the laboratory report and chain of custody documentation is included in Appendix E.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

A summary of the pertinent findings of the Preliminary Site Characterization Report are presented below:

- A release of a diesel product to the subsurface from a shallow pipe (approximately 1-foot deep) was confirmed through visual observation and reported to Ecology on March 21, 2016.

- Petroleum contaminated soil (PCS) removal conducted on March 23 and 30, 2016 included the excavation and off-site disposal of approximately 212 tons of material. PCS removal is considered to be complete to the north, east and south.

  The sample collected from soil/groundwater interface, at approximately 18-feet bgs, had contaminant concentrations in exceedence of the adopted cleanup criteria. However, the excavation continued beneath the groundwater table to approximately 20-feet bgs. As infiltrating diesel fuel is lighter than water its vertical extent is expected to be 18-19 feet bgs. PCS removal is considered to be complete in the vertical direction.

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- The groundwater investigation conducted on site in April 2016 included the installation of three monitoring wells outside the limits of the excavation (MW1- MW3) and one recovery well (RW1) located beneath the point of release. Approximately 4.5 feet of diesel product has been observed in RW1 and MW3 (south of the excavation). Petroleum hydrocarbon contaminants exceed the adopted Cleanup Criteria in both MW1 (north of excavation) and MW2 (east of excavation).

- Interim Action: diesel fuel removal from MW3 and RW1 has included eight removal events for a total removal of 50 gallons. The thickness of product in RW1 was last measured at 2.5 feet on August 5, 2016.

8.2 Recommendations

With regard to the preliminary site characterization of the diesel fuel release on site, PBS recommends the following:

- Continue interim action: diesel fuel product removal. Evaluate additional interim recovery techniques.

- Conduct additional site characterization to better understand the extent and magnitude of impact to groundwater.

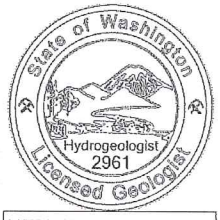
- Submit this report to Ecology.

9.0 LIMITATIONS

PBS has prepared this report for use by the Coleman Oil Company. This report is for the exclusive use of the client and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without the expressed written consent of the client and PBS.

This study was limited to the tests, locations, and depths as indicated to determine the absence or presence of certain contaminants. The site as a whole may have other contamination that was not characterized by this study. The findings and conclusions of this report are not scientific certainties but, rather, are probabilities based on professional judgment concerning the significance of the data gathered during the course of this investigation. PBS is not able to represent that the site or adjoining land contain no hazardous waste, oil or other latent conditions beyond that detected or observed by PBS.

Sincerely,
PBS Engineering and Environmental Inc.



KENNETH NOGEIRE

August 16, 2016
Date

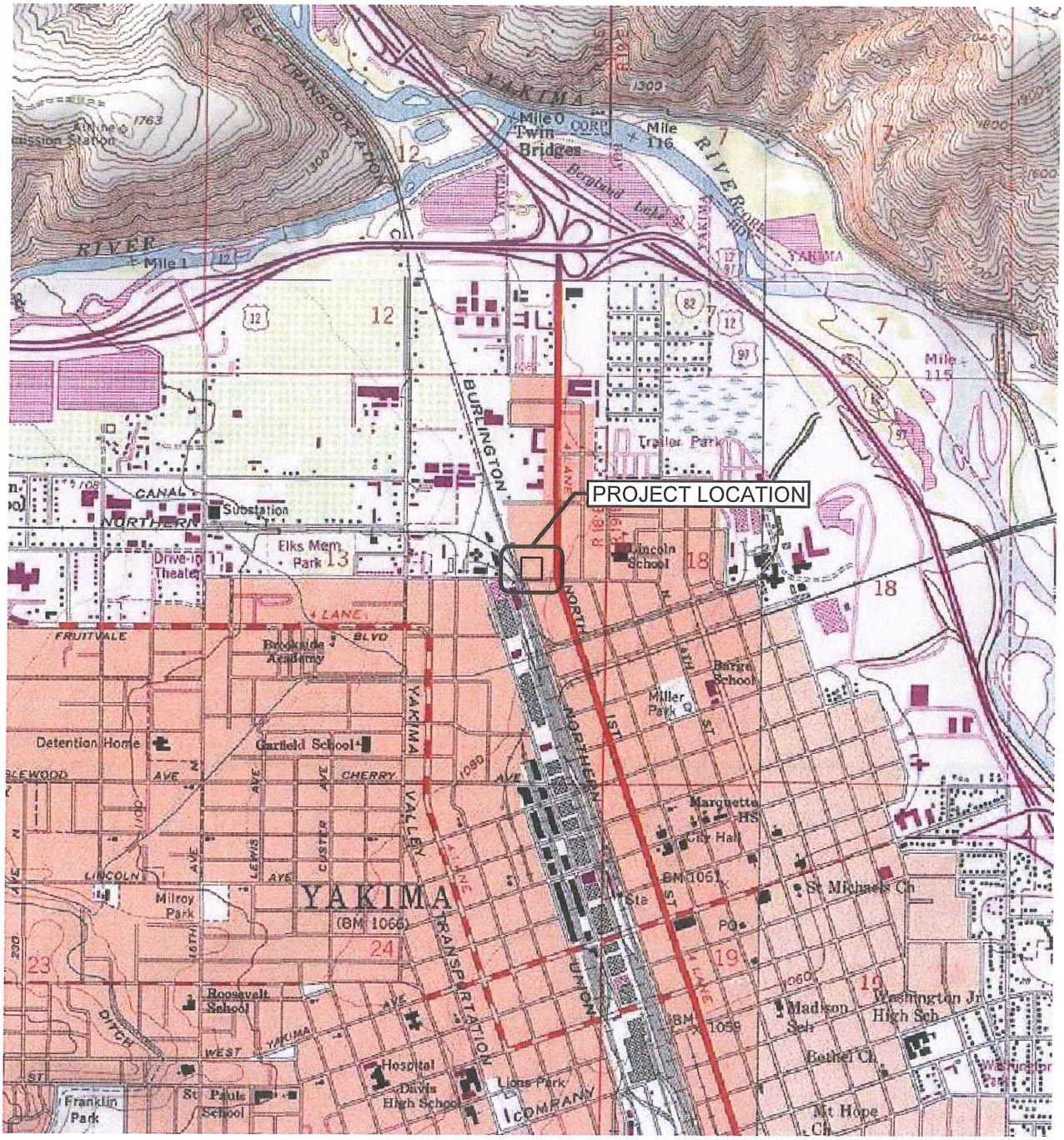
Ken Nogeire, LHG
Senior Geologist/Hydrogeologist

THOMAS J. MERGY

August 16, 2016
Date

Tom Mergy, LG
Senior Geologist
Environmental Services Manager

FIGURES



SOURCE: USGS YAKIMA WEST, WA QUADRANGLE 1985

WASHINGTON

0' 1000' 2000' 4000'

SCALE: 1" = 2,000'

PREPARED FOR: COLEMAN OIL

PBS	PROJECT # 41392.000 DATE AUG 2016	VICINITY MAP 1 EAST I STREET YAKIMA, WASHINGTON	FIGURE 1

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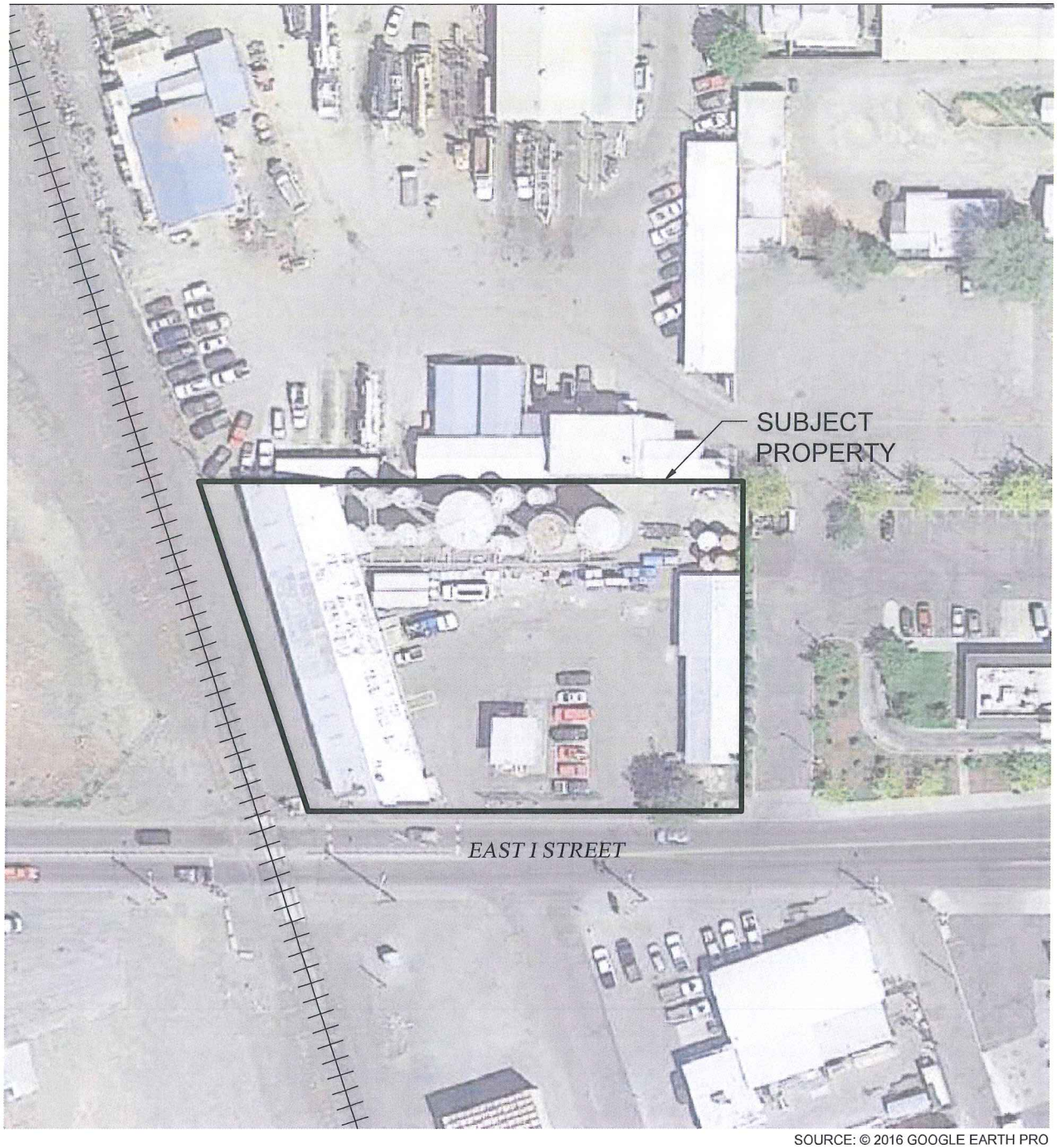

SOURCE: © 2016 GOOGLE EARTH PRO

0' 40' 80' 160'

SCALE: 1" = 80'

PREPARED FOR: COLEMAN OIL

PBS	PROJECT # 41392.000 DATE AUG 2016	SITE PLAN 1 EAST I STREET YAKIMA, WASHINGTON	FIGURE 2

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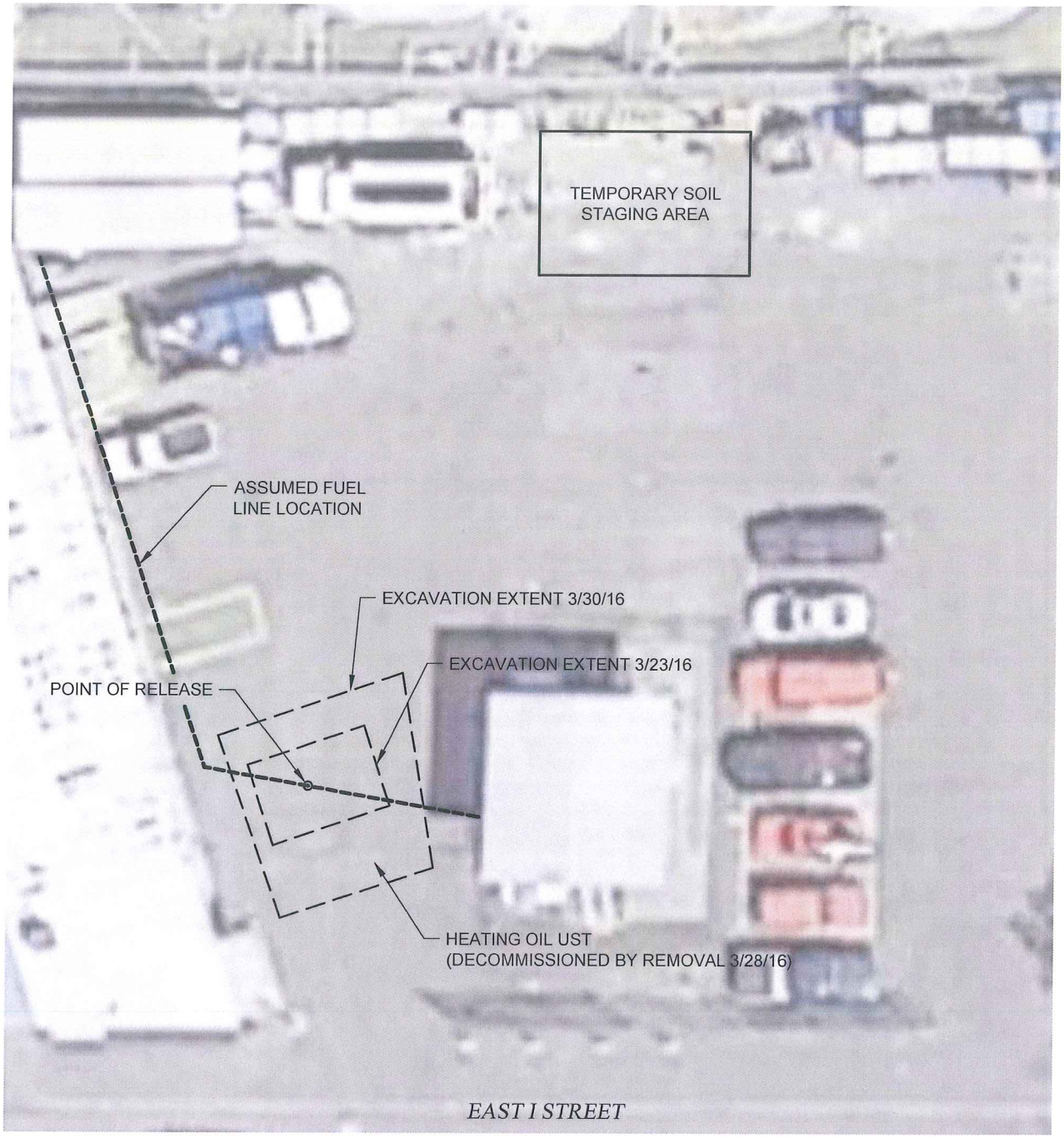

SOURCE: © 2016 GOOGLE EARTH PRO

0' 10' 20' 40'

SCALE: 1" = 20'

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PROJECT # 41392.000

DATE AUG 2016

SITE PLAN: SOIL EXCAVATION

1 EAST I STREET
YAKIMA, WASHINGTON

FIGURE 3

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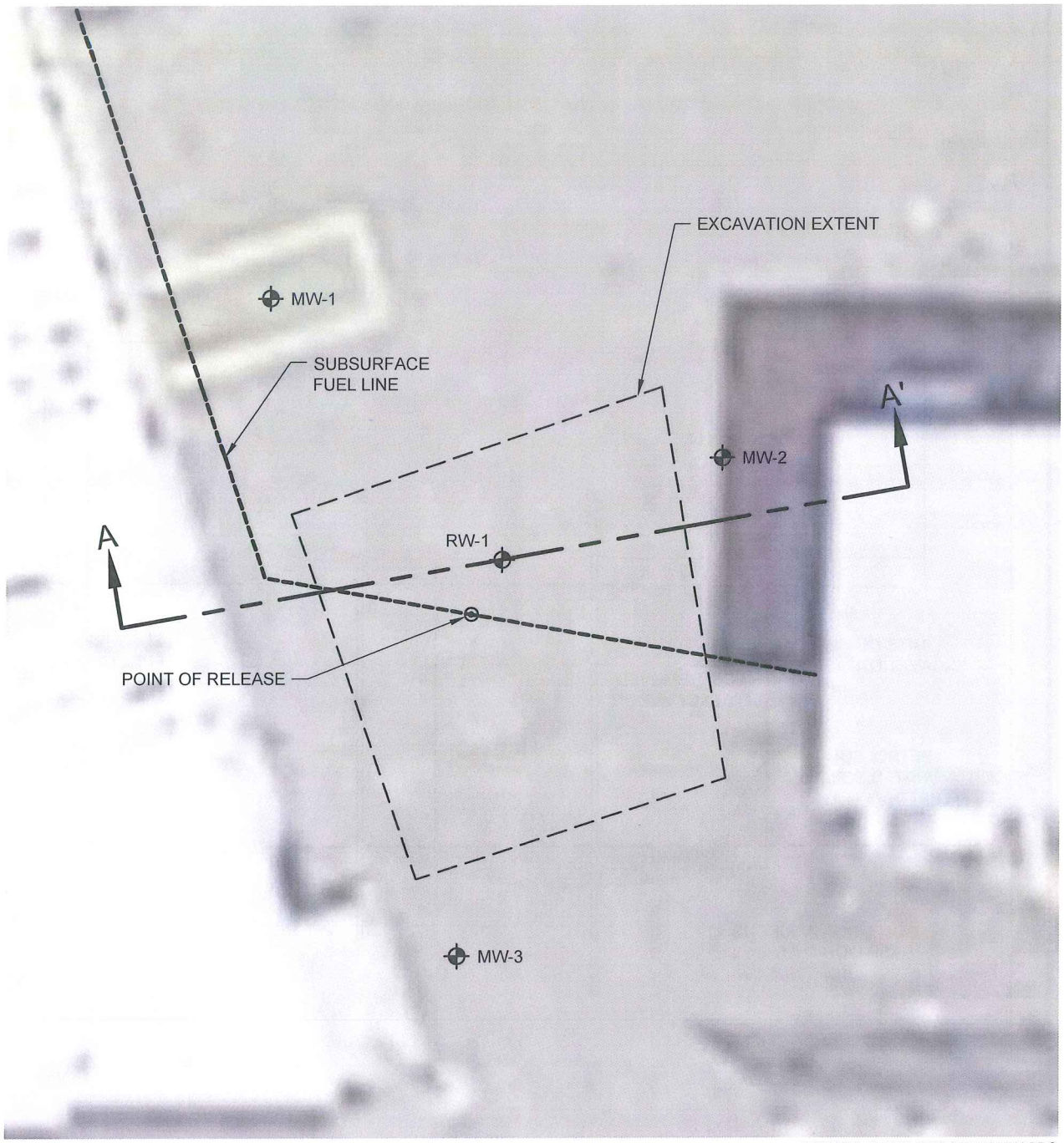

SOURCE: © 2016 GOOGLE EARTH PRO

LEGEND

MW-1 MONITORING WELL NUMBER AND LOCATION

A A' CROSS SECTION LINE (SEE FIGURE 4)

0' 15' 30' 60'

SCALE: 1" = 30'

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PBS

PROJECT #	DATE
41392.000	AUG 2016

SITE PLAN: WELL LOCATIONS

1 EAST I STREET
YAKIMA, WASHINGTON

FIGURE 4

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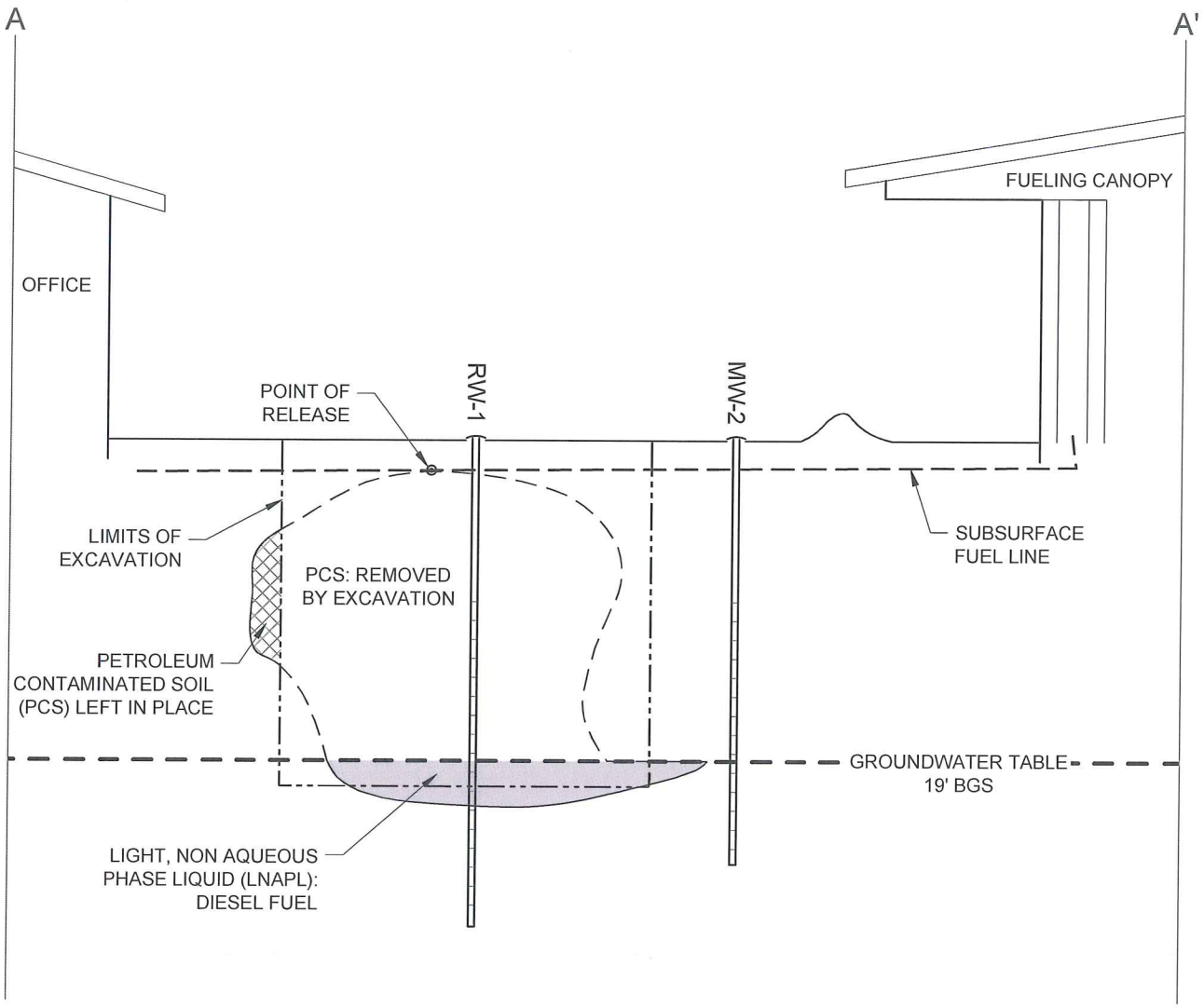

0' 5' 10' 20'

APPROXIMATE SCALE: 1" = 10'

PREPARED FOR: COLEMAN OIL

PBS	PROJECT # 41392.000 DATE AUG 2016	CROSS-SECTION A - A' 1 EAST I STREET YAKIMA, WASHINGTON	FIGURE 5

L:\Projects\41000\41392 Coleman Oil\CAD\Tank Removal\41392.000_FIG_1-4_cross-section.dwg Aug 16, 2016 01:24pm justind

TABLES

TABLE 1: SOIL ANALYTICAL RESULTS

Site: Coleman Oil: 1 East I St, Yakima, WA
Project No: 41392.000

Location	Description	Result mg/Kg										
		TPHs			BTEX				PAHs			Metals
		Gx	Dx	Oil	Benzene	Toluene	Ethyl Benzene	Xylene	B(a)P	Naph	Carcinogenic PAHs**	Lead
Soil Sampling: Excavation confirmation sampling completed March 23, 2016												
NSW1 - 4	Native	-	**11,000**	270x	-	-	-	-	-	-	-	-
WSW1 - 4	Native	-	**26,000**	570x	-	-	-	-	-	-	-	-
B1 - 5.5	Native	**5,100**	**34,000**	770x	0.79	**14**	**20**	**110**	**<0.5***	**8.1**	**<0.05****	-
Soil Sampling: Excavation confirmation sampling completed March 30, 2016												
NSW2 - 15	Native	<2	<50	<250	<0.02	<0.02	<0.02	<0.06	-	-	-	-
ESW1 - 15	Native	3	<50	<250	<0.02	<0.02	<0.02	<0.06	-	-	-	-
SSW1 - 15	Native	5.5	<50	<250	<0.02	0.039	0.024	0.14	-	-	-	-
WSW2 - 11	Native	**3,400**	**9,900*****	330x	<0.02	3.1	**7.5**	**62**	-	-	-	-
B2 - 18	Native	**1,600**	**25,000*****	570x	0.65	5.1	**7.3**	**44**	**<0.5***	**7.2**	**<0.05****	4.94
Adopted Criteria	**MTCA Method A Cleanup Levels For Soil**	**100**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**	**0.1**	**5**	**0.1**	**250**

BOLD indicates above MTCA Method A Cleanup Levels for Groundwater
TPH - total petroleum hydrocarbons
Gx - gasoline range hydrocarbons
Dx - diesel range hydrocarbons
mg/kg - miligrams per kilogram
<50 - less than the laboratory method reporting limit
PAHs - polycyclic aromatic hydrocarbons
Naph - naphthalenes (naphthalene+ 1-methyl naphthalene + 2-methyl naphthalene)
B(a)P - benzo(a)pyrene
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation
* - Detection limit exceeded the adopted criteria due to significant diesel concentration
**Value for carcinogenic PAHs by toxicity equivalency methodology in WAC 173-340-708(8) and table 708.2
*** VPH/EPH analysis was also conducted for this sample, and may be used at a later date to determine appropriate Cleanup Criteria. VPH/EPH results can be found in the attached laboratory reports

TABLE 2: GROUNDWATER ANALYTICAL RESULTS

Site: Coleman Oil: 1 East I St, Yakima, WA
Project No: 41392.000

Result ug/L											
Location/ Depth	Description	TPHs			BTEX				PAHs		
		Gx	Dx	Oil	Benzene	Toluene	Ethyl Benzene	Xylene	B(a)P	Naph	Carcinogenic PAHs**
Groundwater Sampling: Completed May 9, 2016											
MW1	Groundwater	**4,300**	**12,000**	**1,100**	49	78	89	440	<1.2*	56	<1.2*
MW2	Groundwater	420	**1,300**	250	<1	<1	1.1	<3	-	-	-
MW3	Groundwater	**Not sampled due to the presence of LNAPL: diesel product**									
RW1	Groundwater	**Not sampled due to the presence of LNAPL: diesel product**									
Adopted Criteria	**MTCA Method A**	**800**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**0.1**	**160**	**0.1**

BOLD indicates above MTCA Method A Cleanup Levels for Groundwater

TPH - total petroleum hydrocarbons

Gx - gasoline range hydrocarbons

Dx - diesel range hydrocarbons

ug/L - micrograms per litre

<50 - less than the laboratory method reporting limit

PAHs - polycyclic aromatic hydrocarbons

Naph - naphthalenes (naphthalene+ 1-methyl naphthalene + 2-methyl naphthalene)

B(a)P - benzo(a)pyrene

* - Detection limit exceeded the adopted criteria due to significant diesel concentration

**Value for carcinogenic PAHs by toxicity equivalency methodology in WAC 173-340-708(8) and table 708.2

LNAPL - light, non-aqueous phase liquid

APPENDIX A

Petroleum Contaminated Soil Disposal Documentation

Yakima Health District
1210 Ahtanum Ridge Drive
Union Gap, Washington 98903
Phone (509) 575-4040

March 25, 2016

Mr. Kipp Silver
C\O Able Clean-Up Technologies, Inc.
4117 East Nebraska Avenue
Spokane, WA 99217

RE: Coleman Oil Co., 1 East "I" Street, Yakima, WA : Petroleum Contaminated Soil

Mr. Kipp Silver,

This office has reviewed the data on the above mentioned project. The data submitted indicates that the contaminant which requires remediation is diesel. Based on the data submitted it has been determined that the soil may be processed at the Anderson PCS Facility provided that all handling is in accordance with the procedure that has been approved by this office and Washington State Department of Ecology. This letter is to notify you that currently the soil will be considered to be stored on the property and no treatment can begin until the total fee is paid. Waste material may be stored for up to 90 days. Anderson PCS Facility will notify me of the total number of tons delivered for treatment and I will bill you for the remainder of the fee at that time.

FEE ACCOUNT:	Able Clean-Up Technologies, Inc.
PROJECT NAME:	Coleman Oil Co. 1 East "I" Street Yakima, WA
PRE-TREATMENT AUTHORIZATION:	(Based on time spent prior to soil delivery to the site at $141/hour)
TONNAGE FEE AT $0.60 PER TON:	To be determined after delivery
BALANCE OWED:	To be billed after delivery

If you have any questions regarding this letter please contact me at (509) 249-6562.

Sincerely,

Ted Silvestri, RS
Environmental Health Specialist

cc: Anderson PCS Facility

PENDLETON EXCAVATING, INC.

3702 Kern Rd
Yakima, WA 98902

Invoice

Date	Invoice #
3/31/2016	19791

Bill To
Able Clean-Up Technologies Inc 4117 E Nebraska Ave Spokane, WA 99217-6644

P.O. No.	Terms	Project

Quantity	Description	Rate	Amount
	16 loads 212.15 tons		

	Total

Coleman Oil PCS

93771

ANDERSON
ROCK & DEMOLITION PITS
YAKIMA, WASH.

LOAD TICKET # 16153

№ 78499

41 Rocky Top Road
Yakima, WA 98908

Bus. (509) 965-3621 • Fax (509) 965-8656
www.andersonrock.com

Approved

Petroleum Contaminated Soils Site - Topsoil - Shale - Crushed Rock

DELIVERIES #

We make deliveries inside the curb-line at customer's risk only and accept no responsibility whatsoever for damages resulting from such deliveries.

Name Apple Clean Up Technologies

Address

Received by

Phone Home Chris
Office 509 969-3600

Date 3 29 16 Sold by

P.O. # PCS

Job Coleman Oil Co. 1E I Street

Hauled by Andersen

A. Cured concrete
B. Asphaltic materials (does not include roofing)
C. Brick and masonry
D. Ceramic materials
E. Glass
F. Stainless Steel
G. Aluminum
H. Lime
I. Dirt Rock
J. Bldg. Demolition

WEIGHT TICKET #	TIME	TRUCK NO.	QUANTITY	PRODUCT
132610	9:25	9	16.95	PCS
132612	9:37	6	14.81	PCS
132616	10:22	9	15.11	PCS
132618	10:31	6	16.90	PCS
132619	11:15	9	15.99	PCS
132623	11:42	6	14.25	PCS
132625	2:26	9	12.33	PCS
132627	12:54	6	15.97	PCS
132630	1:27	9	16.60	PCS
132632	1:52	6	15.77	PCS
132637	2:21	9	16.20	PCS
132642	2:53	9	16.63	PCS
			187.51	
		TOTAL		

DATE BILLED

CUSTOMER AGREES TO PAY (a) A LATE CHARGE OF 1.5% PER MONTH IF ACCOUNT IS NOT PAID WITHIN 10 DAYS OF INVOICE, AND (b) ATTORNEY'S FEE INCURRED IN COLLECTION.

OUT OF COUNTY?
☐ YES ☐ NO
OUT OF CITY?
☐ YES ☐ NO

ANDERSON
ROCK & DEMOLITION PITS
YAKIMA, WASH.

LOAD TICKET

№ 78526

41 Rocky Top Road
Yakima, WA 98908

Bus. (509) 965-3621 • Fax (509) 965-8656
www.andersonrock.com

Petroleum Contaminated Soils Site - Topsoil - Shale - Crushed Rock

DELIVERIES
We make deliveries inside the curb line at customer's risk only and accept no responsibility whatsoever for damages resulting from such deliveries.

Received by

Date 3/29/16 Sold by

A. Cured concrete
B. Asphaltic materials (does not include roofing)
C. Brick and masonry
D. Ceramic materials
E. Glass
F. Stainless Steel
G. Aluminum
H. Lime
I. Dirt Rock
J. Bldg. Demolition

Name Able Clean Up Technologies

Address

Phone Home Chris

Office 509-999-3600

P.O. # PCS

Job # Coleman oil IE I St.

Hauled by Anderson

WEIGHT TICKET #	TIME	TRUCK NO.	QUANTITY	PRODUCT
132645	3:22	9	15.35	PCS
132653	4:09	6	15.01	PCS
			30.36	
		TOTAL		

Coleman Oil
DTSP. Last 4 of
Category
Job # 16153 Card
Approved
Paid
Check #

DATE BILLED

Tax

CUSTOMER AGREES TO PAY (a) A LATE CHARGE OF 1.5% PER MONTH IF ACCOUNT IS NOT PAID WITHIN 10 DAYS OF INVOICE, AND (b) ATTORNEY'S FEE INCURRED IN COLLECTION.

OUT OF COUNTY? ☐ YES ☐ NO
OUT OF CITY? ☐ YES ☐ NO

5/11/16

ANDERSON
ROCK & DEMOLITION PITS
YAKIMA, WASH.

LOAD TICKET

№ 78528

41 Rocky Top Road
Yakima, WA 98908
Bus. (509) 965-3621 • Fax (509) 965-8656
www.andersonrock.com

Petroleum Contaminated Soils Site - Topsoil - Shale - Crushed Rock

DELIVERIES
We make deliveries inside the curb line at customer's risk only and accept no responsibility whatsoever for damages resulting from such deliveries.

Received by

Date 5/30/16 Sold by

A. Cured concrete
B. Asphaltic materials (does not include roofing)
C. Brick and masonry
D. Ceramic materials
E. Glass
F. Stainless Steel
G. Aluminum
H. Lime
I. Dirt Rock
J. Bldg. Demolition

Name ABLE Clean Up Tech.
Address
Phone Home none
Office 509 999-3600
P.O. #
Job # Colemanoil E D St.
Hauled by

WEIGHT TICKET #	TIME	TRUCK NO.	QUANTITY	PRODUCT
132664	9:34	6	14.10	PCS
132665	10:13	9	15.73	PCS
132666	10:38	6	8.60	PCS
		4		
		5	38.43	
		6		
		7		
		8		
		9		
		10		
		11		
		12		
		TOTAL		

Colemanoil PTS Last 4 of Card:
Category
Job # 16153
Paid
Check #

DATE BILLED 6-9-16

CUSTOMER AGREES TO PAY (a) A LATE CHARGE OF 1.5% PER MONTH IF ACCOUNT IS NOT PAID WITHIN 10 DAYS OF INVOICE, AND (b) ATTORNEY'S FEE INCURRED IN COLLECTION.

OUT OF COUNTY? ☐ YES ☐ NO
OUT OF CITY? ☐ YES ☐ NO

ANDERSON
ROCK & DEMOLITION PITS
YAKIMA, WASH.

LOAD TICKET

№ 78478

41 Rocky Top Road
Yakima, WA 98908

Bus. (509) 965-3621 • Fax (509) 965-8656
www.anderson-rock.com

Petroleum Contaminated Soils Site - Topsoil - Shale - Crushed Rock

DELIVERIES
We make deliveries inside the curb line at customer's risk only and accept no responsibility whatsoever for damages resulting from such deliveries.

Received by

Date 5/26/16 Sold by

A. Cured concrete
B. Asphaltic materials (does not include roofing)
C. Brick and masonry
D. Ceramic materials
E. Glass
F. Stainless Steel
G. Aluminum
H. Lime
I. Dirt Rock
J. Bldg. Demolition

Name Able Clean Up Technologies Inc

Address

Phone Home (509)

Office (509) 999-3200

P.O. # PCS

Job Coleman Oil Co. 1EI Sheet

Hauled by Anderson / Able

WEIGHT TICKET #	TIME	TRUCK NO.	QUANTITY	PRODUCT
132589	12:26 1	9	6.78	PCS
132590	12:34 2	6	13.71	PCS
132591	2:36 3	9	15.37	PCS
132592	1:41 4	6	11.93	PCS
132594	2:01 5	9	16.33	PCS
132596	2:47 6	6	14.83	PCS
132598	3:19 7	9	14.76	PCS
	8			
	9		93.71	
Coleman Oil	10			
	11	DISP		
16153	12			
	TOTAL			

Check # Paid

DATE BILLED

CUSTOMER AGREES TO PAY (a) A LATE CHARGE OF 1.5% PER MONTH IF ACCOUNT IS NOT PAID WITHIN 10 DAYS OF INVOICE, AND (b) ATTORNEY'S FEE INCURRED IN COLLECTION.

OUT OF COUNTY?
☐ YES ☐ NO
OUT OF CITY?
☐ YES ☐ NO

5 ISW

ANDERSON
ROCK & DEMOLITION PITS
YAKIMA, WASH.

LOAD TICKET **№ 78543**

41 Rocky Top Road
Yakima, WA 98908
Bus. (509) 965-3621 • Fax (509) 965-8656
www.andersonrock.com

Petroleum Contaminated Soils Site - Topsoil - Shale - Crushed Rock

DELIVERIES
We make deliveries inside the curb line at customer's risk only and accept no responsibility whatsoever for damages resulting from such deliveries.

Received by

Date 3/30/16 Sold by

A. Cured concrete
B. Asphaltic materials (does not include roofing)
C. Brick and masonry
D. Ceramic materials
E. Glass
F. Stainless Steel
G. Aluminum
H. Lime
I. Dirt Rock
J. Bldg. Demolition

Name ABLE Clean Up Tech

Address

Phone Home (Chris) Office (509) 999-3000

P.O. # Job# Coleman Oil EIS

Hauled by Anderson

WEIGHT TICKET #	TIME	TRUCK NO.	QUANTITY	PRODUCT	UNIT PRICE	AMOUNT
132677	1:59	9	15.47	5/8 Minus		
132678	2:26	6	15.74	5/8 Minus		
132684	2:50	9	16.33	5/8 Minus		
132685	3:09	6	15.42	5/8 minus		
132687	3:45	9	15.19	5/8 minus		
132688	4:00	6	15.39	5/8 minus		
			93.54 Tons	TOTAL		
			Coleman	TAX		
			Category	TOTAL		
			Tax #	Disposal Cost & Card # 16153		
		TOTAL	Check #	Paid		

4.20.16 DATE BILLED

TAX

CUSTOMER AGREES TO PAY (a) A LATE CHARGE OF 1.5% PER MONTH IF ACCOUNT IS NOT PAID WITHIN 10 DAYS OF INVOICE, AND (b) ATTORNEY'S FEE INCURRED IN COLLECTION.

OUT OF COUNTY? ☐ YES ☐ NO
OUT OF CITY? ☐ YES ☐ NO

APPENDIX B

Soil Boring Logs

PBS Engineering + Environmental
2517 Eastlake Ave. East
Suite 100
Seattle, Washington 98102
Phone: 206.233.9639
Fax: 866.727.0140

COLEMAN OIL - YAKIMA
1 EAST I STREET
YAKIMA, WA

PBS PROJECT NUMBER:
41392.000

BORING EW

BORING EW LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	GROUND-WATER	PID (PPM)	SAMPLE NUMBER	SAMPLE/ TEMPORARY WELL(S)	RECOVERY (%)	COMMENTS/ WELL INSTALLATION
0.0		ASPHALT						5-inch x 12-inch flush-mount monument with 1 foot of concrete backfill
		Loose dark grey GRAVEL (GP) with sand; non-plastic; medium sand; subangular fine gravel; moist; no odor; FILL						4-inch PVC blank
5.0							80	
								Bentonite chips
10.0		Loose dark grey-brown SAND (SM) with silt, gravel and cobbles to 4"; low plasticity; medium sand; subround coarse gravel; wet		0.0				
								Sand
15.0							95	
		- grades to wet	4/27/2016	820				
20.0								
								4-inch 0.010-slot prepack screen
25.0							95	
				0.0				
30.0		Final depth 30.0 ft bgs; Groundwater encountered at approximately 18 ft						

BORING METHOD: Sonic Drilling
DRILLED BY: Holt Services
BORING BIT DIAMETER: 8-inch

LOGGED BY: M. Bagley
COMPLETED: 4/27/16

BORING LOG-ENV CORE 41392.000 MW1-3&EW JHD.GPJ DATATMPL.GDT PRINT DATE: 5/18/16 JHD

PBS Engineering + Environmental
2517 Eastlake Ave. East
Suite 100
Seattle, Washington 98102
Phone: 206.233.9639
Fax: 866.727.0140

COLEMAN OIL - YAKIMA
1 EAST I STREET
YAKIMA, WA

PBS PROJECT NUMBER:
41392.000

BORING MW1

BORING MW1 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	GROUND-WATER	PID (PPM)	SAMPLE NUMBER	SAMPLE/ TEMPORARY WELL(S)	RECOVERY (%)	COMMENTS/ WELL INSTALLATION
0.0		ASPHALT						5-inch x 12-inch flush-mount monument with 1 foot of concrete backfill
		Brown SILT (MH) with sand and some gravel; high plasticity; fine sand; subround fine gravel; moist; no odor; FILL						2-inch PVC blank
5.0							90	Bentonite chips
10.0		Loose grey SAND (SM) with silt, gravel and cobbles to 4"; low plasticity; medium sand; subround coarse gravel; moist; no odor		0.0				
15.0		- grades to wet	4/27/2016	1000	MW-1		95	Sand
20.0							95	2-inch 0.010-slot prepack screen
25.0		Final depth 25.0 ft bgs; Groundwater encountered at approximately 18 ft		25				
30.0								

BORING METHOD: Sonic Drilling
DRILLED BY: Holt Services
BORING BIT DIAMETER: 8-inch

LOGGED BY: M. Bagley
COMPLETED: 4/27/16

BORING LOG-ENV CORE 41392.000 MW1-3&EW JHD.GPJ DATATMPL.GDT PRINT DATE: 5/18/16 JHD

PBS Engineering + Environmental
2517 Eastlake Ave. East
Suite 100
Seattle, Washington 98102
Phone: 206.233.9639
Fax: 866.727.0140

COLEMAN OIL - YAKIMA
1 EAST I STREET
YAKIMA, WA

PBS PROJECT NUMBER:
41392.000

BORING MW2

BORING MW2 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	GROUND-WATER	PID (PPM)	SAMPLE NUMBER	SAMPLE/ TEMPORARY WELL(S)	RECOVERY (%)	COMMENTS/ WELL INSTALLATION
0.0		ASPHALT						5-inch x 12-inch flush-mount monument with 1 foot of concrete backfill
		Brown silty SAND (SM) and some gravel; medium plasticity; fine sand; subround fine gravel; moist; no odor; FILL						2-inch PVC blank
5.0							70	Bentonite chips
		Loose grey SAND (SM) with silt, gravel and cobbles to 4"; low plasticity; medium sand; subround coarse gravel; moist; no odor		0.0				
10.0								Sand
							99	
15.0			4/27/2016					
		- grades to wet		0.0				
20.0								2-inch 0.010-slot prepack screen
							95	
25.0				76	MW-2			
		Final depth 25.0 ft bgs; Groundwater encountered at approximately 18 ft						
30.0								

BORING METHOD: Sonic Drilling
DRILLED BY: Holt Services
BORING BIT DIAMETER: 8-inch

LOGGED BY: M. Bagley
COMPLETED: 4/27/16

PBS Engineering + Environmental
2517 Eastlake Ave. East
Suite 100
Seattle, Washington 98102
Phone: 206.233.9639
Fax: 866.727.0140

COLEMAN OIL - YAKIMA
1 EAST I STREET
YAKIMA, WA

PBS PROJECT NUMBER:
41392.000

BORING MW3

BORING MW3 LOCATION:
(See Site Plan)

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	GROUND-WATER	PID (PPM)	SAMPLE NUMBER	SAMPLE/ TEMPORARY WELL(S)	RECOVERY (%)	COMMENTS/ WELL INSTALLATION
0.0		ASPHALT						5-inch x 12-inch flush-mount monument with 1 foot of concrete backfill
		Brown silty SAND (SM) and some gravel; medium plasticity; fine sand; subround fine gravel; moist; no odor; FILL					80	2-inch PVC blank
5.0								Bentonite chips
10.0		Loose grey SAND (SM) with silt, gravel and cobbles; low plasticity; medium sand; subround coarse gravel; moist; no odor					95	Sand
15.0		- grades to grey/black and wet with cobbles to 5"	4/27/2016	1200	MW-3			
20.0				464			95	2-inch 0.010-slot prepack screen
25.0		Final depth 25.0 ft bgs; Groundwater encountered at approximately 18 ft		418				
30.0								

BORING METHOD: Sonic Drilling
DRILLED BY: Holt Services
BORING BIT DIAMETER: 8-inch

LOGGED BY: M. Bagley
COMPLETED: 4/27/16

BORING LOG-ENV CORE 41392.000 MW1-3&EW JHD.GPJ DATATMPL.GDT PRINT DATE: 5/18/16 JHD

APPENDIX C

Groundwater Sampling Forms

PBS	PBS Engineering and Environmental **GROUNDWATER SAMPLING FORM (YSI 556)**	Project No: 41392.000 Project Name/ Location: Coleman Oil, 1 E I Street, Yakima, WA Date: May 10, 2016	
Initial DTW (feet bgs)	19.13	Monitoring Well ID	MW1
Screen Interval (feet bgs)	9.9 to 25.9	Sample ID (if not well ID)	
Well depth (feet bgs)	24.9	QC Sample type: _____	☒ Not collected ID_____ Time_____
Depth of pump/tubing inlet (feet bgs)	22.5		
Sampling method (describe pump or sampler)	Peristaltic Pump	Field Personnel	MN
Purge Rate (L/min)	0.16	Weather Conditions	Sunny, warm

WELL PURGING INFORMATION

Time ☐ elapsed ☒ actual	DTW (feet)	Temp. (C)	Specific conductivity ☐ mS/cm ☒ µS/cm	Dissolved oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Observations	Volume purged ☒ ltr ☐ gal
1028	19.8	16.9	1408	0.55	7.13	-420.0	-	-	1.5
1032	20.0	16.8	1399	0.29	7.15	-431.2	-	-	2.5
1038	20.1	18.2	1381	0.31	7.16	-438.2	-	-	3.5
1044	20.1	19.0	1385	0.27	7.16	-434.2	-	-	4.5
								Total Volume Purged	4.5

FIELD OBSERVATIONS / NOTES (such as well head condition, groundwater color, sediment load, recovery, sheen, odor, equipment)

Well head in good condition. Groundwater is clear with yellow tint, medium recovery no odor or sheen.

Signature of Field Personnel: MN

PBS	PBS Engineering and Environmental **GROUNDWATER SAMPLING FORM (YSI 556)**	Project No: 41392.000 Project Name/ Location: Coleman Oil 1 E I Street, Yakima, WA Date: May 10, 2016	
Initial DTW (feet bgs)	19.82	**Monitoring Well ID**	**MW2**
Screen Interval (feet bgs)	10.3 to 25.3	**Sample ID** (if not well ID)	
Well depth (feet bgs)	25.3	**QC Sample type:** _____	☒ Not collected ID_____ Time_____
Depth of pump/tubing inlet (feet bgs)	22.5		
Sampling method (describe pump or sampler)	Peristaltic Pump	**Field Personnel**	**MN**
Purge Rate (L/min)	0.2	**Weather Conditions**	**Sunny, warm**

WELL PURGING INFORMATION

Time ☐ elapsed ☒ actual	DTW (feet)	Temp. (C)	Specific conductivity ☐ mS/cm ☒ µS/cm	Dissolved oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Observations	Volume purged ☒ ltr ☐ gal
1115	20.4	16.1	469.7	0.47	6.94	-293.7	-	-	1
1120	20.5	16.0	469.2	0.47	6.94	-312.9	-	-	2
1125	20.5	16.1	468.6	0.49	6.94	-352.7	-	-	3
1130	20.5	16.2	468.1	0.50	6.95	-352.7	-	-	4
1133	20.5	16.3	466.5	0.33	6.94	-398.2	-	-	4.5
1135	20.5	16.3	466.7	0.33	6.95	-400.3	-	-	5
1138	20.5	16.3	466.4	0.31	6.94	-402.1	-	-	5.5
								Total Volume Purged	**5.5**

FIELD OBSERVATIONS / NOTES (such as well head condition, groundwater color, sediment load, recovery, sheen, odor, equipment)

Well head in good condition. Groundwater is clear with yellow tint, medium recovery, strong odor/sheen.

Signature of Field Personnel:MN

PBS	PBS Engineering and Environmental **GROUNDWATER SAMPLING FORM (YSI 556)**	Project No: 41392.000 Project Name/ Location: Coleman Oil, 1 E I Street, Yakima, WA Date: May 10, 2016	
Initial DTW (feet bgs)	N/A	**Monitoring Well ID**	**MW3**
Screen Interval (feet bgs)	14 to 24	**Sample ID** (if not well ID)	
Well depth (feet bgs)	24.0	**QC Sample type:** _____	☐ Not collected ID_____ Time_____
Depth of pump/tubing inlet (feet bgs)	N/A		
Sampling method (describe pump or sampler)	N/A	**Field Personnel**	**MN**
Purge Rate (L/min)	N/A	**Weather Conditions**	**Sunny, warm**

WELL PURGING INFORMATION

Time ☐ elapsed ☐ actual	DTW (feet)	Temp. (C)	Specific conductivity ☐ mS/cm ☐ µS/cm	Dissolved oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Observations	Volume purged ☐ ltr ☐ gal
								Total Volume Purged	

FIELD OBSERVATIONS / NOTES (such as well head condition, groundwater color, sediment load, recovery, sheen, odor, equipment)

Well was not sampled due to presence of diesel product.

Depth to product: 18.8 feet bgs

Depth to water: 23.5 feet bgs

Diesel product thickness: 4.7 feet

Signature of Field Personnel: MN

PBS	PBS Engineering and Environmental **GROUNDWATER SAMPLING FORM (YSI 556)**	Project No: 41392.000 Project Name/ Location: Coleman Oil 1 E I Street, Yakima, WA Date: May 10, 2016	
Initial DTW (feet bgs)	N/A	**Monitoring Well ID**	**RW1**
Screen Interval (feet bgs)	15.05 to 30.05	**Sample ID** (if not well ID)	
Well depth (feet bgs)	30.05	**QC Sample type:** _____	☐ Not collected ID_____ Time_____
Depth of pump/tubing inlet (feet bgs)	N/A		
Sampling method (describe pump or sampler)	N/A	**Field Personnel**	**MN**
Purge Rate (L/min)	N/A	**Weather Conditions**	**Sunny, warm**

WELL PURGING INFORMATION

Time ☐ elapsed ☒ actual	DTW (feet)	Temp. (C)	Specific conductivity ☐ mS/cm ☒ µS/cm	Dissolved oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Observations	Volume purged ☒ ltr ☐ gal
								Total Volume Purged	**5.5**

FIELD OBSERVATIONS / NOTES (such as well head condition, groundwater color, sediment load, recovery, sheen, odor, equipment)

Well was not sampled due to presence of diesel product.

Depth to product: 19.38 feet bgs

Depth to water: 23.64 feet bgs

Diesel product thickness: 4.26 feet

Signature of Field Personnel:MN

APPENDIX D

Diesel Product Thickness and Removal Summary

Diesel Product Thickness and Removal Summary

Coleman Oil Yakima

Address: 1 E. I Street, Yakima, WA

Ecology ERTS No: 663825

PBS Project No.: 41392

	RW1 product thickness (feet)	RW1 product removed (liters)		MW3 product thickness (feet)	MW3 product removed (liters)
5/10/2016	4.26	0	5/10/2016	4.7	0
5/31/2016	4.94	35.4	5/31/2016	4.87	12
6/8/2016	4.25	32	6/8/2016		
6/10/2016		12	6/30/2016	4.25	3.6
6/30/2016	4.75	53			
7/12/2016	3.2	19.05			
7/21/2016	2.5	15.45			
8/5/2016	2.58	16.5			
total		**183.4**			**15.6**

APPENDIX E

Laboratory Reports
Chain-of-Custody Documentation

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

March 31, 2016

Ken Nogeire, Project Manager
PBS Engineering and Environmental, Inc.
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

Dear Mr. Nogeire:

Included are the results from the testing of material submitted on March 23, 2016 from the Coleman Yakima, 64116 PO, F&BI 603413 project. There are 9 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
PBS0331R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 23, 2016 by Friedman & Bruya, Inc. from the PBS Engineering and Environmental Coleman Yakima, 64116 PO, F&BI 603413 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	PBS Engineering and Environmental
603413 -01	NSW1-4
603413 -02	WSW1-4
603413 -03	B1-5.5

All quality control requirements were acceptable.

Date of Report: 03/31/16
Date Received: 03/23/16
Project: Coleman Yakima, 64116 PO, F&BI 603413
Date Extracted: 03/24/16
Date Analyzed: 03/24/16

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B1-5.5 603413-03 1/10	0.79	14	20	110	5,100	ip
Method Blank 06-556 MB	<0.02	<0.02	<0.02	<0.06	<2	89

Date of Report: 03/31/16
Date Received: 03/23/16
Project: Coleman Yakima, 64116 PO, F&BI 603413
Date Extracted: 03/24/16
Date Analyzed: 03/24/16

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 53-144)
NSW1-4 603413-01	11,000	270 x	91
WSW1-4 603413-02	26,000	570 x	72
B1-5.5 603413-03	34,000	770 x	103
Method Blank 06-567 MB	<50	<250	99

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B1-5.5	Client:	PBS Engineering and Environmental
Date Received:	03/23/16	Project:	Coleman Yakima, 64116 PO, F&BI 603413
Date Extracted:	03/24/16	Lab ID:	603413-03 1/250
Date Analyzed:	03/24/16	Data File:	032418.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	3 d	31	163
Benzo(a)anthracene-d12	163 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	8.1
Acenaphthylene	<0.5
Acenaphthene	1.4
Fluorene	3.4
Phenanthrene	5.0
Anthracene	<0.5
Fluoranthene	<0.5
Pyrene	2.4
Benz(a)anthracene	<0.5
Chrysene	<0.5
Benzo(a)pyrene	<0.5
Benzo(b)fluoranthene	<0.5
Benzo(k)fluoranthene	<0.5
Indeno(1,2,3-cd)pyrene	<0.5
Dibenz(a,h)anthracene	<0.5
Benzo(g,h,i)perylene	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	Not Applicable	Project:	Coleman Yakima, 64116 PO, F&BI 603413
Date Extracted:	03/24/16	Lab ID:	06-569 mb 1/5
Date Analyzed:	03/28/16	Data File:	032803.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	163
Benzo(a)anthracene-d12	102	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 03/31/16
Date Received: 03/23/16
Project: Coleman Yakima, 64116 PO, F&BI 603413

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING EPA METHOD 8021B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	0.5	94	91	69-120	3
Toluene	mg/kg (ppm)	0.5	100	96	70-117	4
Ethylbenzene	mg/kg (ppm)	0.5	101	98	65-123	3
Xylenes	mg/kg (ppm)	1.5	99	99	66-120	0

Date of Report: 03/31/16
Date Received: 03/23/16
Project: Coleman Yakima, 64116 PO, F&BI 603413

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

Laboratory Code: 603420-01 (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)	5,000	<50	95	97	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	79-144

Date of Report: 03/31/16
Date Received: 03/23/16
Project: Coleman Yakima, 64116 PO, F&BI 603413

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	93	91	58-121	2
Acenaphthylene	mg/kg (ppm)	0.17	96	93	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	93	92	54-123	1
Fluorene	mg/kg (ppm)	0.17	94	91	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	94	92	55-122	2
Anthracene	mg/kg (ppm)	0.17	90	86	50-120	5
Fluoranthene	mg/kg (ppm)	0.17	93	87	54-129	7
Pyrene	mg/kg (ppm)	0.17	92	97	53-127	5
Benz(a)anthracene	mg/kg (ppm)	0.17	95	94	51-115	1
Chrysene	mg/kg (ppm)	0.17	92	95	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	99	96	56-123	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	100	99	54-131	1
Benzo(a)pyrene	mg/kg (ppm)	0.17	93	89	51-118	4
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	91	87	49-148	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	86	83	50-141	4
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	86	84	52-131	2

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.

603413

SAMPLE CHAIN OF CUSTODY

ME 03/23/16

EB / VSI

Page # _____ of _____

Report To Ken Nogura

Company PBS Engineering

Address Seattle, WA

City, State, ZIP

Phone 509.572.9163 Email ken.nogura@pbsenv.com

SAMPLERS (*signature*) K. Nogura

PROJECT NAME: Coleman Yakima

PO #: 64116

REMARKS

INVOICE TO

TURNAROUND TIME

- ☐ Standard Turnaround
- ☒ RUSH 24 hour

Rush charges authorized by: K. Nogura

SAMPLE DISPOSAL

- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
NSW1-4	01	3.23.16	1140	Soil	1		X										
WSW1-4	02	3.23.16	1200	Soil	1		X										24 for diesel
B1-S.S	03 A-F	3.23.16	1240	Soil	6		X	X	X			X					48 for G+ BTEX PAHs

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: K. Nogura	Ken Nogura	PBS	3.23.16	1640
Received by:	Erica	EB	3/23/16	1640
Relinquished by:				
Received by:				

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

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

April 22, 2016

Ken Nogeire, Project Manager
PBS Engineering and Environmental, Inc.
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

Dear Mr. Nogeire:

Included are the results from the testing of material submitted on April 1 , 2016 from the 41392, F&BI 604013 project. There are 14 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
PBS0422R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 1, 2016 by Friedman & Bruya, Inc. from the PBS Engineering and Environmental 41392, F&BI 604013 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	PBS Engineering and Environmental
604013 -01	NSW2-17
604013 -02	ESW1-17
604013 -03	SSW1-17
604013 -04	WSW2-11
604013 -05	B2-18
604013 -06	Trip Blank

Samples WSW2-11 and B2-18 was sent to Fremont Analytical for EPH and VPH analyses. Review of the enclosed report indicates that all quality assurance were acceptable.

All quality control requirements were acceptable.

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013
Date Extracted: 04/01/16
Date Analyzed: 04/01/16 and 04/05/16

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
NSW2-17 604013-01	<0.02	<0.02	<0.02	<0.06	<2	81
ESW1-17 604013-02	<0.02	<0.02	<0.02	<0.06	3.1	84
SSW1-17 604013-03	<0.02	0.039	0.024	0.14	5.5	76
WSW2-11 604013-04	<0.02	3.1	7.5	62	3,400	ip
B2-18 604013-05	0.65	5.1	7.3	44	1,600	ip
Method Blank 06-612 MB	<0.02	<0.02	<0.02	<0.06	<2	86

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013
Date Extracted: 04/01/16
Date Analyzed: 04/01/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) Limit (52-124)
Trip Blank 604013-06	<1	<1	<1	<3	84
Method Blank 06-613 MB	<1	<1	<1	<3	83

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013
Date Extracted: 04/04/16
Date Analyzed: 04/04/16

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 48-168)
NSW2-17 604013-01	<50	<250	93
ESW1-17 604013-02	<50	<250	105
SSW1-17 604013-03	<50	<250	91
WSW2-11 604013-04	9,900	330 x	93
B2-18 604013-05	25,000	570 x	73
Method Blank 06-660 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	B2-18	Client:	PBS Engineering and Environmental
Date Received:	04/01/16	Project:	41392, F&BI 604013
Date Extracted:	04/01/16	Lab ID:	604013-05
Date Analyzed:	04/01/16	Data File:	604013-05.065
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Analyte:	Concentration mg/kg (ppm)
Lead	4.94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	NA	Project:	41392, F&BI 604013
Date Extracted:	04/01/16	Lab ID:	I6-186 mb
Date Analyzed:	04/01/16	Data File:	I6-186 mb.019
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B2-18	Client:	PBS Engineering and Environmental
Date Received:	04/01/16	Project:	41392, F&BI 604013
Date Extracted:	04/04/16	Lab ID:	604013-05 1/250
Date Analyzed:	04/04/16	Data File:	040415.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	45	31	163
Benzo(a)anthracene-d12	160	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	7.2
Acenaphthylene	<0.5
Acenaphthene	0.86
Fluorene	2.1
Phenanthrene	2.5
Anthracene	<0.5
Fluoranthene	<0.5
Pyrene	1.6
Benz(a)anthracene	<0.5
Chrysene	<0.5
Benzo(a)pyrene	<0.5
Benzo(b)fluoranthene	<0.5
Benzo(k)fluoranthene	<0.5
Indeno(1,2,3-cd)pyrene	<0.5
Dibenz(a,h)anthracene	<0.5
Benzo(g,h,i)perylene	<0.5

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	Not Applicable	Project:	41392, F&BI 604013
Date Extracted:	04/04/16	Lab ID:	06-657 mb 1/5
Date Analyzed:	04/04/16	Data File:	040404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	163
Benzo(a)anthracene-d12	90	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013

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

Laboratory Code: 603575-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	81	69-120
Toluene	mg/kg (ppm)	0.5	91	70-117
Ethylbenzene	mg/kg (ppm)	0.5	93	65-123
Xylenes	mg/kg (ppm)	1.5	94	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING EPA METHOD 8021B

Laboratory Code: 604014-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	92	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	89	74-118

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013

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

Laboratory Code: 604013-01 (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)	5,000	<50	128	120	73-135	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	122	74-139

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 603575-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	30.1	96	111	70-130	14

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	106	85-115

Date of Report: 04/22/16
Date Received: 04/01/16
Project: 41392, F&BI 604013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 604023-02 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	<0.01	87	87	44-129	0
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	85	86	52-121	1
Acenaphthene	mg/kg (ppm)	0.17	<0.01	86	87	51-123	1
Fluorene	mg/kg (ppm)	0.17	<0.01	82	83	37-137	1
Phenanthrene	mg/kg (ppm)	0.17	<0.01	87	87	34-141	0
Anthracene	mg/kg (ppm)	0.17	<0.01	81	85	32-124	5
Fluoranthene	mg/kg (ppm)	0.17	<0.01	82	80	16-160	2
Pyrene	mg/kg (ppm)	0.17	<0.01	90	91	10-180	1
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	87	87	23-144	0
Chrysene	mg/kg (ppm)	0.17	<0.01	90	90	32-149	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	89	89	23-176	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	89	89	42-139	0
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	83	88	21-163	6
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	95	90	23-170	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	91	89	31-146	2
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	93	89	37-133	4

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	90	58-121
Acenaphthylene	mg/kg (ppm)	0.17	90	54-121
Acenaphthene	mg/kg (ppm)	0.17	89	54-123
Fluorene	mg/kg (ppm)	0.17	90	56-127
Phenanthrene	mg/kg (ppm)	0.17	91	55-122
Anthracene	mg/kg (ppm)	0.17	85	50-120
Fluoranthene	mg/kg (ppm)	0.17	91	54-129
Pyrene	mg/kg (ppm)	0.17	84	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	88	51-115
Chrysene	mg/kg (ppm)	0.17	91	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	96	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	91	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	85	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	91	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	90	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	90	52-131

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.

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

RE: 604013
Lab ID: 1604015

April 21, 2016

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 4/1/2016 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Sample Moisture (Percent Moisture)
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President

Date: *04/21/2016*

CLIENT: Friedman & Bruya
Project: 604013
Lab Order: 1604015

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1604015-001	WSW2-11	03/30/2016 12:00 AM	04/01/2016 3:54 PM
1604015-002	B1-18	03/30/2016 12:00 AM	04/01/2016 3:54 PM

Revision v1

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

Case Narrative

WO#: **1604015**
Date: **4/21/2016**

CLIENT: Friedman & Bruya
Project: 604013

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

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

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

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

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

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

Analytical Report

WO#: **1604015**
Date Reported: **4/21/2016**

Client: Friedman & Bruya
Collection Date: 3/30/2016
Project: 604013
Lab ID: 1604015-001
Matrix: Soil
Client Sample ID: WSW2-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 13403		Analyst: CM
Aliphatic Hydrocarbon (C8-C10)	52.4	4.86	*	mg/Kg-dry	1	4/20/2016 12:26:00 AM
Aliphatic Hydrocarbon (C10-C12)	271	4.86	*	mg/Kg-dry	1	4/20/2016 12:26:00 AM
Aliphatic Hydrocarbon (C12-C16)	715	4.86	*	mg/Kg-dry	1	4/20/2016 12:26:00 AM
Aliphatic Hydrocarbon (C16-C21)	711	4.86	Q	mg/Kg-dry	1	4/20/2016 12:26:00 AM
Aliphatic Hydrocarbon (C21-C34)	176	4.86	*	mg/Kg-dry	1	4/20/2016 12:26:00 AM
Aromatic Hydrocarbon (C8-C10)	31.2	4.86	*	mg/Kg-dry	1	4/20/2016 9:30:00 AM
Aromatic Hydrocarbon (C10-C12)	160	4.86	*	mg/Kg-dry	1	4/20/2016 9:30:00 AM
Aromatic Hydrocarbon (C12-C16)	531	4.86	*	mg/Kg-dry	1	4/20/2016 9:30:00 AM
Aromatic Hydrocarbon (C16-C21)	820	4.86		mg/Kg-dry	1	4/20/2016 9:30:00 AM
Aromatic Hydrocarbon (C21-C34)	659	4.86		mg/Kg-dry	1	4/20/2016 9:30:00 AM
Surr: 1-Chlorooctadecane	64.3	60-140		%Rec	1	4/20/2016 12:26:00 AM
Surr: o-Terphenyl	104	60-140		%Rec	1	4/20/2016 9:30:00 AM

NOTES:
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 13409		Analyst: BC
Aliphatic Hydrocarbon (C5-C6)	ND	2.23		mg/Kg-dry	1	4/7/2016 12:32:08 PM
Aliphatic Hydrocarbon (C6-C8)	16.6	2.23		mg/Kg-dry	1	4/7/2016 12:32:08 PM
Aliphatic Hydrocarbon (C8-C10)	122	44.7	D	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Aliphatic Hydrocarbon (C10-C12)	509	44.7	D	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Aromatic Hydrocarbon (C8-C10)	173	44.7	D	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Aromatic Hydrocarbon (C10-C12)	2,960	44.7	DE	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Aromatic Hydrocarbon (C12-C13)	4,630	44.7	DE	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Benzene	ND	0.558		mg/Kg-dry	1	4/7/2016 12:32:08 PM
Toluene	1.82	0.558		mg/Kg-dry	1	4/7/2016 12:32:08 PM
Ethylbenzene	4.23	0.558	Q	mg/Kg-dry	1	4/7/2016 12:32:08 PM
m,p-Xylene	18.1	0.558		mg/Kg-dry	1	4/7/2016 12:32:08 PM
o-Xylene	11.1	0.558		mg/Kg-dry	1	4/7/2016 12:32:08 PM
Naphthalene	274	11.2	D	mg/Kg-dry	20	4/7/2016 4:13:09 AM
Methyl tert-butyl ether (MTBE)	ND	0.558	*	mg/Kg-dry	1	4/7/2016 12:32:08 PM
Surr: 1,4-Difluorobenzene	113	65-140		%Rec	1	4/7/2016 12:32:08 PM
Surr: Bromofluorobenzene	71.7	65-140	D	%Rec	20	4/7/2016 4:13:09 AM

NOTES:
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Fremont Analytical

Analytical Report

WO#: **1604015**
Date Reported: **4/21/2016**

Client: Friedman & Bruya
Project: 604013
Lab ID: 1604015-001
Client Sample ID: **WSW2-11**

Collection Date: 3/30/2016
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R28628		Analyst: CG
Percent Moisture	7.71	0.500		wt%	1	4/6/2016 1:16:13 PM

Revision v1

Client: Friedman & Bruya
Collection Date: 3/30/2016
Project: 604013
Lab ID: 1604015-002
Matrix: Soil
Client Sample ID: B1-18

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 13403 Analyst: CM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	196	5.30	*	mg/Kg-dry	1	4/20/2016 2:58:00 AM
Aliphatic Hydrocarbon (C10-C12)	761	5.30	*	mg/Kg-dry	1	4/20/2016 2:58:00 AM
Aliphatic Hydrocarbon (C12-C16)	1,870	53.0	D	mg/Kg-dry	10	4/20/2016 6:35:00 PM
Aliphatic Hydrocarbon (C16-C21)	630	53.0	DQ	mg/Kg-dry	10	4/20/2016 6:35:00 PM
Aliphatic Hydrocarbon (C21-C34)	338	5.30	*	mg/Kg-dry	1	4/20/2016 2:58:00 AM
Aromatic Hydrocarbon (C8-C10)	100	5.30	*	mg/Kg-dry	1	4/20/2016 11:56:00 AM
Aromatic Hydrocarbon (C10-C12)	323	5.30	*	mg/Kg-dry	1	4/20/2016 11:56:00 AM
Aromatic Hydrocarbon (C12-C16)	989	5.30	*	mg/Kg-dry	1	4/20/2016 11:56:00 AM
Aromatic Hydrocarbon (C16-C21)	830	53.0	D	mg/Kg-dry	10	4/20/2016 7:29:00 PM
Aromatic Hydrocarbon (C21-C34)	1,100	53.0	D	mg/Kg-dry	10	4/20/2016 7:29:00 PM
Surr: 1-Chlorooctadecane	110	60-140		%Rec	1	4/20/2016 2:58:00 AM
Surr: o-Terphenyl	130	60-140		%Rec	1	4/20/2016 11:56:00 AM

NOTES:
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 13409 Analyst: BC

Aliphatic Hydrocarbon (C5-C6)	ND	1.86		mg/Kg-dry	1	4/7/2016 1:43:06 PM
Aliphatic Hydrocarbon (C6-C8)	27.5	1.86		mg/Kg-dry	1	4/7/2016 1:43:06 PM
Aliphatic Hydrocarbon (C8-C10)	ND	93.0	D	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Aliphatic Hydrocarbon (C10-C12)	389	93.0	D	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Aromatic Hydrocarbon (C8-C10)	159	93.0	D	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Aromatic Hydrocarbon (C10-C12)	4,170	93.0	DE	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Aromatic Hydrocarbon (C12-C13)	6,850	93.0	DE	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Benzene	0.519	0.465		mg/Kg-dry	1	4/7/2016 1:43:06 PM
Toluene	7.80	0.465		mg/Kg-dry	1	4/7/2016 1:43:06 PM
Ethylbenzene	9.59	0.465	Q	mg/Kg-dry	1	4/7/2016 1:43:06 PM
m,p-Xylene	28.7	0.465		mg/Kg-dry	1	4/7/2016 1:43:06 PM
o-Xylene	14.7	0.465		mg/Kg-dry	1	4/7/2016 1:43:06 PM
Naphthalene	364	23.2	D	mg/Kg-dry	50	4/7/2016 4:48:40 AM
Methyl tert-butyl ether (MTBE)	ND	0.465	*	mg/Kg-dry	1	4/7/2016 1:43:06 PM
Surr: 1,4-Difluorobenzene	113	65-140		%Rec	1	4/7/2016 1:43:06 PM
Surr: Bromofluorobenzene	73.8	65-140	D	%Rec	50	4/7/2016 4:48:40 AM

NOTES:
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Fremont Analytical

Analytical Report

WO#: **1604015**
Date Reported: **4/21/2016**

Client: Friedman & Bruya
Project: 604013
Lab ID: 1604015-002
Client Sample ID: **B1-18**

Collection Date: 3/30/2016
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R28628		Analyst: CG
Percent Moisture	12.9	0.500		wt%	1	4/6/2016 1:16:13 PM

Revision v1

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-13403**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **MBLKS**	Batch ID: **13403**					Analysis Date: **4/19/2016**		SeqNo: **542942**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	5.00									
Aliphatic Hydrocarbon (C10-C12)	ND	5.00									
Aliphatic Hydrocarbon (C12-C16)	ND	5.00									
Aliphatic Hydrocarbon (C16-C21)	ND	5.00									
Aliphatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: 1-Chlorooctadecane	13.4		20.00		66.8	60	140				

Sample ID: **LCS-13403**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **LCSS**	Batch ID: **13403**					Analysis Date: **4/19/2016**		SeqNo: **542941**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	155	5.00	100.0	0	155	70	130				S
Aliphatic Hydrocarbon (C10-C12)	123	5.00	50.00	0	245	70	130				S
Aliphatic Hydrocarbon (C12-C16)	136	5.00	50.00	0	272	70	130				S
Aliphatic Hydrocarbon (C16-C21)	41.7	5.00	50.00	0	83.3	70	130				Q
Aliphatic Hydrocarbon (C21-C34)	121	5.00	50.00	0	241	70	130				S
Surr: 1-Chlorooctadecane	12.4		20.00		62.1	60	140				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a *.
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.

Sample ID: **MB-13403**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **MBLKS**	Batch ID: **13403**					Analysis Date: **4/19/2016**		SeqNo: **542976**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	5.00									
Aromatic Hydrocarbon (C10-C12)	ND	5.00									
Aromatic Hydrocarbon (C12-C16)	ND	5.00									
Aromatic Hydrocarbon (C16-C21)	ND	5.00									
Aromatic Hydrocarbon (C21-C34)	ND	5.00									
Surr: o-Terphenyl	21.5		20.00		108	60	140				

Fremont Analytical

Date: *4/21/2016*

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-13403**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **MBLKS**	Batch ID: **13403**					Analysis Date: **4/19/2016**		SeqNo: **542976**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **LCS-13403**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **LCSS**	Batch ID: **13403**					Analysis Date: **4/19/2016**		SeqNo: **542975**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	143	5.00	50.00	0	285	70	130				S
Aromatic Hydrocarbon (C10-C12)	166	5.00	50.00	0	332	70	130				S
Aromatic Hydrocarbon (C12-C16)	173	5.00	50.00	0	347	70	130				S
Aromatic Hydrocarbon (C16-C21)	62.6	5.00	50.00	0	125	70	130				
Aromatic Hydrocarbon (C21-C34)	48.8	5.00	50.00	0	97.7	70	130				
Surr: o-Terphenyl	19.3		20.00		96.3	60	140				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a *.

Sample ID: **1604015-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **4/6/2016**		RunNo: **28874**		
Client ID: **WSW2-11**	Batch ID: **13403**					Analysis Date: **4/20/2016**		SeqNo: **543026**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	192	5.33	106.5	52.43	131	70	130				S
Aliphatic Hydrocarbon (C10-C12)	378	5.33	106.5	270.9	100	70	130				
Aliphatic Hydrocarbon (C12-C16)	821	5.33	106.5	714.7	99.3	70	130				
Aliphatic Hydrocarbon (C16-C21)	664	5.33	106.5	711.0	-43.9	70	130				SQ
Aliphatic Hydrocarbon (C21-C34)	288	5.33	106.5	176.4	105	70	130				
Surr: 1-Chlorooctadecane	12.9		21.31		60.6	60	140				

NOTES:
S - Outlying spike recoveries were associated with this sample.
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1604015-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/6/2016** RunNo: **28874**
Client ID: **WSW2-11** Batch ID: **13403** Analysis Date: **4/20/2016** SeqNo: **543027**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	212	4.74	94.80	52.43	168	70	130	191.5	10.2	30	S
Aliphatic Hydrocarbon (C10-C12)	427	4.74	94.80	270.9	164	70	130	377.7	12.2	30	S
Aliphatic Hydrocarbon (C12-C16)	756	4.74	94.80	714.7	43.6	70	130	820.5	8.18	30	S
Aliphatic Hydrocarbon (C16-C21)	731	4.74	94.80	711.0	21.4	70	130	664.2	9.62	30	SQ
Aliphatic Hydrocarbon (C21-C34)	326	4.74	94.80	176.4	158	70	130	287.9	12.4	30	S
Surr: 1-Chlorooctadecane	13.5		18.96		71.3	60	140		0		

NOTES:
S - Outlying spike recoveries were associated with this sample.
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.

Sample ID: **1604015-002ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/6/2016** RunNo: **28874**
Client ID: **B1-18** Batch ID: **13403** Analysis Date: **4/20/2016** SeqNo: **543023**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	404	5.23						196.4	69.2	30	R*
Aliphatic Hydrocarbon (C10-C12)	693	5.23						760.7	9.32	30	*
Aliphatic Hydrocarbon (C12-C16)	1,630	5.23						1,506	7.85	30	E*
Aliphatic Hydrocarbon (C16-C21)	1,500	5.23						1,211	21.1	30	EQ
Aliphatic Hydrocarbon (C21-C34)	334	5.23						338.4	1.31	30	*
Surr: 1-Chlorooctadecane	19.3		4.184		460	60	140		0		S

NOTES:
R - High RPD observed.
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Sample ID: **1604015-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/6/2016** RunNo: **28874**
Client ID: **WSW2-11** Batch ID: **13403** Analysis Date: **4/20/2016** SeqNo: **543038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	188	5.33	106.5	0	177	70	130				S
Aromatic Hydrocarbon (C10-C12)	342	5.33	106.5	0	321	70	130				S
Aromatic Hydrocarbon (C12-C16)	679	5.33	106.5	0	637	70	130				S

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: 1604015-001AMS	SampType: MS			Units: mg/Kg-dry		Prep Date: 4/6/2016		RunNo: 28874			
Client ID: WSW2-11	Batch ID: 13403					Analysis Date: 4/20/2016		SeqNo: 543038			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C16-C21)	986	5.33	106.5	0	925	70	130				S
Aromatic Hydrocarbon (C21-C34)	416	5.33	106.5	0	390	70	130				S
Surr: o-Terphenyl	23.6		21.31		111	60	140				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: 1604015-001AMSD	SampType: MSD			Units: mg/Kg-dry		Prep Date: 4/6/2016		RunNo: 28874			
Client ID: WSW2-11	Batch ID: 13403					Analysis Date: 4/20/2016		SeqNo: 543034			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	217	4.74	94.80	0	229	70	130	0	200	30	S
Aromatic Hydrocarbon (C10-C12)	413	4.74	94.80	0	435	70	130	0	200	30	S
Aromatic Hydrocarbon (C12-C16)	815	4.74	94.80	0	860	70	130	0	200	30	S
Aromatic Hydrocarbon (C16-C21)	1,420	4.74	94.80	0	1,490	70	130	0	200	30	S
Aromatic Hydrocarbon (C21-C34)	831	4.74	94.80	0	877	70	130	0	200	30	S
Surr: o-Terphenyl	26.1		18.96		138	60	140		0		

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: 1604015-002ADUP	SampType: DUP			Units: mg/Kg-dry		Prep Date: 4/6/2016		RunNo: 28874			
Client ID: B1-18	Batch ID: 13403					Analysis Date: 4/20/2016		SeqNo: 543031			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	84.1	5.23						0	200	30	*
Aromatic Hydrocarbon (C10-C12)	278	5.23						0	200	30	*
Aromatic Hydrocarbon (C12-C16)	853	5.23						0	200	30	*
Aromatic Hydrocarbon (C16-C21)	1,730	5.23						0	200	30	E
Aromatic Hydrocarbon (C21-C34)	1,120	5.23						0	200	30	E
Surr: o-Terphenyl	27.3		20.92		131	60	140		0		

NOTES:
* - Flagged value is not within established control limits.

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-13409**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28673**			
Client ID: **LCSS**	Batch ID: **13409**					Analysis Date: **4/7/2016**		SeqNo: **539441**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	21.2	2.00	30.00	0	70.7	70	130				
Aliphatic Hydrocarbon (C6-C8)	8.35	2.00	10.00	0	83.5	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.26	2.00	10.00	0	92.6	70	130				
Aliphatic Hydrocarbon (C10-C12)	8.58	2.00	10.00	0	85.8	70	130				
Aromatic Hydrocarbon (C8-C10)	37.2	2.00	40.00	0	93.0	70	130				
Aromatic Hydrocarbon (C10-C12)	9.07	2.00	10.00	0	90.7	70	130				
Aromatic Hydrocarbon (C12-C13)	7.36	2.00	10.00	0	73.6	70	130				
Benzene	8.17	0.500	10.00	0	81.7	70	130				
Toluene	8.13	0.500	10.00	0	81.3	70	130				
Ethylbenzene	8.51	0.500	10.00	0	85.1	70	130				
m,p-Xylene	17.4	0.500	20.00	0	86.8	70	130				
o-Xylene	8.84	0.500	10.00	0	88.4	70	130				
Naphthalene	7.43	0.500	10.00	0	74.3	70	130				
Methyl tert-butyl ether (MTBE)	ND	0.500	10.00	0	0	70	130				SQ
Surr: 1,4-Difluorobenzene	2.57		2.500		103	65	140				
Surr: Bromofluorobenzene	2.57		2.500		103	65	140				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.

Sample ID: **MB-13409**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **4/6/2016**		RunNo: **28673**			
Client ID: **MBLKS**	Batch ID: **13409**					Analysis Date: **4/7/2016**		SeqNo: **539319**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	2.00		0	0						

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **MB-13409** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/6/2016** RunNo: **28673**
Client ID: **MBLKS** Batch ID: **13409** Analysis Date: **4/7/2016** SeqNo: **539319**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.500		0	0						
Toluene	ND	0.500		0	0						
Ethylbenzene	ND	0.500		0	0						
m,p-Xylene	ND	0.500		0	0						
o-Xylene	ND	0.500		0	0						
Naphthalene	ND	0.500		0	0						
Methyl tert-butyl ether (MTBE)	ND	0.500		0	0						*
Surr: 1,4-Difluorobenzene	2.55		2.500		102	65	140				
Surr: Bromofluorobenzene	1.91		2.500		76.4	65	140				

NOTES:
* - Flagged value is not within established control limits.

Sample ID: **1604014-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/6/2016** RunNo: **28673**
Client ID: **BATCH** Batch ID: **13409** Analysis Date: **4/7/2016** SeqNo: **539305**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	1.65		0	0			0		25	
Aliphatic Hydrocarbon (C6-C8)	6.01	1.65		0	0			4.209	35.2	25	R
Aliphatic Hydrocarbon (C8-C10)	7.10	1.65		0	0			3.721	62.4	25	R
Aliphatic Hydrocarbon (C10-C12)	20.6	1.65		0	0			19.61	5.04	25	
Aromatic Hydrocarbon (C8-C10)	11.8	1.65		0	0			8.624	30.8	25	R
Aromatic Hydrocarbon (C10-C12)	89.9	1.65		0	0			80.54	11.0	25	E
Aromatic Hydrocarbon (C12-C13)	64.5	1.65		0	0			62.40	3.25	25	
Benzene	ND	0.413		0	0			0		25	
Toluene	ND	0.413		0	0			0		25	
Ethylbenzene	ND	0.413		0	0			0		25	
m,p-Xylene	ND	0.413		0	0			0		25	
o-Xylene	ND	0.413		0	0			0		25	
Naphthalene	6.81	0.413		0	0			6.449	5.40	25	
Methyl tert-butyl ether (MTBE)	ND	0.413		0	0			0		25	*
Surr: 1,4-Difluorobenzene	2.10		2.064		102	65	140		0		

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1604014-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**	Prep Date: **4/6/2016**			RunNo: **28673**		
Client ID: **BATCH**	Batch ID: **13409**				Analysis Date: **4/7/2016**			SeqNo: **539305**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene	2.06		2.064		99.7	65	140		0	0	

NOTES:
R - High RPD observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
* - Flagged value is not within established control limits.

Sample ID: **1604015-002BMS**	SampType: **MS**			Units: **mg/Kg-dry**	Prep Date: **4/6/2016**			RunNo: **28673**		
Client ID: **B1-18**	Batch ID: **13409**				Analysis Date: **4/7/2016**			SeqNo: **539310**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	22.2	1.86	27.90	1.398	74.7	70	130				
Aliphatic Hydrocarbon (C6-C8)	41.4	1.86	9.299	27.47	149	70	130				S
Aliphatic Hydrocarbon (C8-C10)	81.4	1.86	9.299	66.78	157	70	130				SE
Aliphatic Hydrocarbon (C10-C12)	414	1.86	9.299	329.4	913	70	130				SE
Aromatic Hydrocarbon (C8-C10)	313	1.86	37.20	245.5	180	70	130				SE
Aromatic Hydrocarbon (C10-C12)	613	1.86	9.299	589.6	253	70	130				SQE
Aromatic Hydrocarbon (C12-C13)	554	1.86	9.299	813.4	-2,790	70	130				SQE
Benzene	12.8	0.465	9.299	0.5190	132	70	130				S
Toluene	17.9	0.465	9.299	7.797	108	70	130				
Ethylbenzene	17.9	0.465	9.299	9.588	89.3	70	130				Q
m,p-Xylene	44.2	0.465	18.60	28.70	83.6	70	130				
o-Xylene	22.8	0.465	9.299	14.67	87.5	70	130				
Naphthalene	152	0.465	9.299	100.5	551	70	130				S
Methyl tert-butyl ether (MTBE)	ND	0.465	9.299	0	0	70	130				S*
Surr: 1,4-Difluorobenzene	3.10		2.325		133	65	140				
Surr: Bromofluorobenzene	4.47		2.325		192	65	140				S

NOTES:
S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.
* - Flagged value is not within established control limits.

Fremont Analytical

Date: *4/21/2016*

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1604015-002BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/6/2016** RunNo: **28673**
Client ID: **B1-18** Batch ID: **13409** Analysis Date: **4/7/2016** SeqNo: **539311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	23.5	1.86	27.90	1.398	79.4	70	130	22.24	5.70	30	
Aliphatic Hydrocarbon (C6-C8)	41.6	1.86	9.299	27.47	152	70	130	41.37	0.498	30	S
Aliphatic Hydrocarbon (C8-C10)	79.6	1.86	9.299	66.78	138	70	130	81.39	2.27	30	SE
Aliphatic Hydrocarbon (C10-C12)	458	1.86	9.299	329.4	1,390	70	130	414.3	10.1	30	SE
Aromatic Hydrocarbon (C8-C10)	330	1.86	37.20	245.5	227	70	130	312.6	5.44	30	SE
Aromatic Hydrocarbon (C10-C12)	593	1.86	9.299	589.6	40.2	70	130	613.1	3.29	30	SQE
Aromatic Hydrocarbon (C12-C13)	688	1.86	9.299	813.4	-1,350	70	130	554.2	21.5	30	SQE
Benzene	13.1	0.465	9.299	0.5190	135	70	130	12.80	2.14	30	S
Toluene	19.1	0.465	9.299	7.797	122	70	130	17.85	6.73	30	
Ethylbenzene	20.2	0.465	9.299	9.588	114	70	130	17.89	12.1	30	Q
m,p-Xylene	49.2	0.465	18.60	28.70	110	70	130	44.24	10.7	30	
o-Xylene	25.2	0.465	9.299	14.67	113	70	130	22.80	9.90	30	
Naphthalene	167	0.465	9.299	100.5	720	70	130	151.7	9.85	30	SE
Methyl tert-butyl ether (MTBE)	ND	0.465	9.299	0	0	70	130	0		30	S*
Surr: 1,4-Difluorobenzene	3.52		2.325		151	65	140		0		S
Surr: Bromofluorobenzene	4.89		2.325		210	65	140		0	0	S

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF); high bias.

* - Flagged value is not within established control limits.

Fremont Analytical

Date: *4/21/2016*

Work Order: 1604015
CLIENT: Friedman & Bruya
Project: 604013

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID: **1604002-001ADUP**	SampType: **DUP**				Units: **wt%**		Prep Date: **4/6/2016**			RunNo: **28628**		
Client ID: **BATCH**	Batch ID: **R28628**						Analysis Date: **4/6/2016**			SeqNo: **538346**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Percent Moisture	19.5	0.500						16.74		15.4	20	

Fremont Analytical

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1604015**
Logged by:	**Erica Silva**	Date Received:	**4/1/2016 3:54:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		No cooler present		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☑	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

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

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	10.1
Sample	10.3

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

1604015

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO. 604013

PO # D-906

REMARKS

Please Email Results

TURNAROUND TIME

☑ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	Nitrate	Sulfate	Alkalinity	TOC-9060M				Notes
WSW2-11		3/30/16		Soil	2		x	x								
B1-18		↓		↓	↓		x	x								

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman and Bruya	4/1/16	14:05
Received by:		Erica Silva	FAI	4/1/16	15:54
Relinquished by:					
Received by:					

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

604013

SAMPLE CHAIN OF CUSTODY

ME 04-01-16

VI/CI/AO3

Page # 1 of 1

Send Report To Ken Nogeire
Company PBS Engineering
Address 2517 East
City, State, ZIP Seattle, WA
Phone # 509.572.8163 Fax #
Email Address Ken.nogeire@pbsenv.com

SAMPLERS (signature) Dana B. Ertel
PROJECT NAME/NO. 41392
PO # 41392
PROJECT ADDRESS
• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
✓ Standard Turnaround
• RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
✓ Dispose after 30 days
• Return samples
• Will call with instructions
Samples Received at ___ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	VPH / EPH	Lead	PAHs			Notes
NSW2-17	01 A-D	3.30.16		soil	4	X	X	X									
ESW1-17	02				"	X	X	X									
SSW1-17	03				"	X	X	X									
WSW2-11	04				"	X	X	X				X					
B1-18	05				"	X	X	X				X	X	X			
Trip Blank	06				1			X									

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Dana B. Ertel	Dana B. Ertel	PBS	3/24/2016	
Received by:		Nham Pham	FEBI	4/1/16	10:00
Relinquished by:					
Received by:					

Samples received at 2 °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

May 19, 2016

Ken Nogeire, Project Manager
PBS Engineering and Environmental, Inc.
2517 Eastlake Ave E, Suite 100
Seattle, WA 98102

Dear Mr. Nogeire:

Included are the results from the testing of material submitted on May 11, 2016 from the 41392, F&BI 605193 project. There are 12 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
c: Megan Nogeire
PBS0519R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 11, 2016 by Friedman & Bruya, Inc. from the PBS Engineering and Environmental 41392, F&BI 605193 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	PBS Engineering and Environmental
605193 -01	MW1
605193 -02	MW2
605193 -03	Trip blank

The 8270D laboratory control sample and laboratory control sample duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193
Date Extracted: 05/12/16
Date Analyzed: 05/12/16 and 05/13/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW1 605193-01	49	78	89	440	4,300	118
MW2 605193-02	<1	<1	1.1	<3	420	101
Method Blank 06-943 MB	<1	<1	<1	<3	<100	96

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193
Date Extracted: 05/12/16
Date Analyzed: 05/12/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) Limit (52-124)
Trip blank 605193-03	<1	<1	<1	<3	98
Method Blank 06-943 MB	<1	<1	<1	<3	96

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193
Date Extracted: 05/12/16
Date Analyzed: 05/12/16

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)
MW1 605193-01	12,000	1,100 x	72
MW2 605193-02	1,300	250 x	112
Method Blank 06-959 MB	<50	<250	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW1	Client:	PBS Engineering and Environmental
Date Received:	05/11/16	Project:	41392, F&BI 605193
Date Extracted:	05/12/16	Lab ID:	605193-01 1/2
Date Analyzed:	05/12/16	Data File:	051222.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	160
Benzo(a)anthracene-d12	67	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	38 ve
Acenaphthylene	<0.06
Acenaphthene	0.16
Fluorene	0.19
Phenanthrene	0.18
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW1	Client:	PBS Engineering and Environmental
Date Received:	05/11/16	Project:	41392, F&BI 605193
Date Extracted:	05/12/16	Lab ID:	605193-01 1/40
Date Analyzed:	05/13/16	Data File:	051304.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	111 d	31	160
Benzo(a)anthracene-d12	76 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	56
Acenaphthylene	<1.2
Acenaphthene	<1.2
Fluorene	<1.2
Phenanthrene	<1.2
Anthracene	<1.2
Fluoranthene	<1.2
Pyrene	<1.2
Benz(a)anthracene	<1.2
Chrysene	<1.2
Benzo(a)pyrene	<1.2
Benzo(b)fluoranthene	<1.2
Benzo(k)fluoranthene	<1.2
Indeno(1,2,3-cd)pyrene	<1.2
Dibenz(a,h)anthracene	<1.2
Benzo(g,h,i)perylene	<1.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW2	Client:	PBS Engineering and Environmental
Date Received:	05/11/16	Project:	41392, F&BI 605193
Date Extracted:	05/12/16	Lab ID:	605193-02 1/2
Date Analyzed:	05/12/16	Data File:	051223.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	105	31	160
Benzo(a)anthracene-d12	94	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	3.9
Acenaphthylene	<0.06
Acenaphthene	0.23
Fluorene	0.25
Phenanthrene	0.42
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	0.11
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	Not Applicable	Project:	41392, F&BI 605193
Date Extracted:	05/12/16	Lab ID:	06-934 mb
Date Analyzed:	05/12/16	Data File:	051217.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193

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

Laboratory Code: 605188-05 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	95	65-118
Toluene	ug/L (ppb)	50	97	72-122
Ethylbenzene	ug/L (ppb)	50	97	73-126
Xylenes	ug/L (ppb)	150	96	74-118
Gasoline	ug/L (ppb)	1,000	93	69-134

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193

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	97	96	63-142	1

Date of Report: 05/19/16
Date Received: 05/11/16
Project: 41392, F&BI 605193

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	98	89	67-116	10
Acenaphthylene	ug/L (ppb)	1	98	89	65-119	10
Acenaphthene	ug/L (ppb)	1	100	91	66-118	9
Fluorene	ug/L (ppb)	1	96	88	64-125	9
Phenanthrene	ug/L (ppb)	1	101	93	67-120	8
Anthracene	ug/L (ppb)	1	98	90	65-122	9
Fluoranthene	ug/L (ppb)	1	89	83	65-127	7
Pyrene	ug/L (ppb)	1	109	95	62-130	14
Benz(a)anthracene	ug/L (ppb)	1	112	98	60-118	13
Chrysene	ug/L (ppb)	1	109	96	66-125	13
Benzo(b)fluoranthene	ug/L (ppb)	1	107	91	55-135	16
Benzo(k)fluoranthene	ug/L (ppb)	1	100	93	62-125	7
Benzo(a)pyrene	ug/L (ppb)	1	102	89	58-127	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	102	77	36-142	28 vo
Dibenz(a,h)anthracene	ug/L (ppb)	1	94	69	37-133	31 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	96	74	34-135	26 vo

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.

605193

SAMPLE CHAIN OF CUSTODY

ME 05-11-16

DOH/V.1

Send Report To K. Nogeire
Company PBS
Address 2517 Eastlake Ave. E
City, State, ZIP Seattle, WA
Phone # 509-572-8163 Fax #

SAMPLERS (signature) Megan Nogere
PROJECT NAME/NO. – 41392
PO # 41392
REMARKS
GEMS Y / N

Page # 1 of 1

TURNAROUND TIME
☑ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals	PAHs		Notes
MW1	—	—	01A-F	1044	5.9.16	water	5	X	X	X				X		
MW2	—	—	02	1138	5.9.16	water	5	X	X	X				X		
trip blank			03A-B	—	—	water	2			X						

Samples received at 5 °C

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

FORMS\COC\SESGEMSR1.DOC (Revision 1)

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ken Nogere	Ken Noge	PBS	5.11.16	1400
Received by:	D Sams	D Sams	Fedex SDC	5/11	2:34
Relinquished by:					
Received by:	Elizabeth Radford	Elizabeth Radford	F&B	5/11	3:00

Samples received at 5 °C