

Subsurface Investigation Report

TOC Holdings Co. Site 01-323
301 North Central Ave. Kent, Washington

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Table of Contents

1.0 INTRODUCTION	1
1.1 Purpose	1
2.0 SITE BACKGROUND	2
2.1 Description of Property	2
2.2 Site History and Land Use	2
2.2.1 Property	2
2.3 Physical Setting	3
2.3.1 Regional Geology and Hydrogeology	3
2.3.2 Groundwater Use	4
2.3.3 Site Geology and Hydrogeology	4
2.4 Previous Investigations	4
2.4.1 Release Discovery	4
2.4.2 Limited Site Investigation	4
2.4.3 Interim Remedial Action	5
2.5 Data Gaps	6
3.0 PRE-INVESTIGATION ACTIVITIES	7
3.1 Permits	7
3.2 Health and Safety Plan	7
3.3 Underground Utility Locates	7
4.0 SUBSURFACE INVESTIGATION	9
4.1 Field Methods	9
4.1.1 Soil Borings	9
4.1.2 Monitoring Well Installation	10
4.1.3 Well Development	10
4.1.4 Surveying	11
4.1.5 Monitoring Well Sampling	11
4.2 Laboratory Analysis	11
5.0 INVESTIGATION RESULTS	13
5.1 Subsurface Conditions	13
5.2 Field Screening Results	13
5.3 Analytical Results	14
5.3.1 Soil Analytical Results	14
5.3.2 Groundwater Analytical Results	15
5.4 Groundwater Flow Direction and Gradient	16
6.0 DISCUSSION	17
6.1 Soil Conditions	17
6.2 Groundwater Conditions	17
7.0 RECOMMENDATIONS	18
8.0 QUALIFICATIONS	19

List of Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Features and Utilities
- Figure 3 – Soil Analytical Results for July 2015
- Figure 4 – Groundwater Analytical Results for July 2015
- Figure 5 – Groundwater Elevation Contours for July 2015

List of Tables

- Table 1 – Soil Analytical Results – Total Petroleum Hydrocarbons and Volatile Organic Compounds
- Table 2 – Soil Analytical Results – Semi-Volatile Organic Compounds
- Table 3 – Soil Analytical Results – Volatile and Extractable Petroleum Hydrocarbons
- Table 4 – Groundwater Analytical Results - Total Petroleum Hydrocarbons, Volatile Organic Compounds and Lead
- Table 5 – Groundwater Analytical Results - Semi-Volatile Organic Compounds

Appendices

- Appendix A – Boring Logs
- Appendix B – Monitoring Well Development Field Forms
- Appendix C – Groundwater Sample Collection Field Forms
- Appendix D – Laboratory Report and Chain-of-Custody Documentation

Acronyms

AeroTech	AeroTech Environmental Consulting
BTEX	benzene, toluene, ethylbenzene, and total xylenes
COC	Chemical of Concern
DRPH	diesel range petroleum hydrocarbons
Ecology	Washington Department of Ecology
ESA	environmental site assessment
ESN	Environmental Services Network
GRPH	gasoline range petroleum hydrocarbons
HASP	Health and Safety Plan
HydroCon	HydroCon Environmental LLC
LDPE	low-density polyethylene
LSI	Limited Site Investigation
MRL	method reporting limit
MTCA	Model Toxics Control Act
ORPH	oil range petroleum hydrocarbons
OSHA	Occupational Safety and Health Administration
PAHs	polynuclear aromatic hydrocarbons
PID	photoionization detector
PVC	polyvinyl chloride
REC	recognized environmental condition
SI	Subsurface Investigation
SVOCs	semi-volatile organic compounds
TCP	traffic control plan
Terracon	Terracon Consultants, Inc.
TPH	total petroleum hydrocarbons
UST	underground storage tank
VI	vapor intrusion
VOCs	volatile organic compounds
VPH/EPH	volatile and extractable petroleum hydrocarbons

1.0 INTRODUCTION

HydroCon Environmental, LLC (HydroCon) has prepared this Subsurface Investigation Report (SI) on behalf of TOC Holdings Co. (formerly Time Oil Co.) for the former TOC Holdings Co. Facility No. 01-323 located at 301 North Central Ave in Kent, Washington (the Property; Figure 1).

1.1 *Purpose*

The purpose of the SI was to collect data necessary to adequately characterize the Site for the purposes of developing and evaluating cleanup action alternatives. This SI Report summarizes historical information regarding the former use of the Property and surrounding parcels and summarizes the scope and findings of a subsurface investigation that was conducted in June and July 2015. As concluded in this report, the nature and extent of petroleum hydrocarbons in soil and groundwater for the Site have not been completely characterized and additional work is needed. As a result, the report focuses on the recent subsurface investigation and does not report on previous investigations beyond summarizing that work.

2.0 SITE BACKGROUND

This section provides a description of the Site and features, historical and current use of the Property and surrounding properties, the physical setting of the Site, and previous investigations conducted on the Site and at surrounding properties.

2.1 *Description of Property*

The Property is a square-shaped lot located at 301 Central Avenue North, Kent, Washington 97032. Property address also includes 305 Central Avenue North and 215 East Smith Street. The Property consists of a 0.31-acre lot comprised of two tax lots (King County tax parcels Nos. 917960-1735 and 917960-1745) in Kent, King County, Washington. The Site is currently owned by the Vivolo Family Trust LLC.

A 1,656-square foot restaurant, Taqueria El Rinconsito, is located in the southeastern portion of the Site. A paved parking lot and a drive-thru lane south of the restaurant comprise the remainder of the Property.

2.2 *Site History and Land Use*

2.2.1 *Property*

HydroCon reviewed a Limited Site Investigation (LSI) report prepared by Terracon Consultants, Inc. (2013¹). The report was prepared for the Vivolo Family Trust LLC and includes information from a Phase I Environmental Site Assessment (ESA) prepared by Aerotech Environmental Consulting (Aerotec 2010, as reported in Terracon 2013).

According to Aerotech, a gas station was historically located in the eastern portion of the Property from at least 1935 to 1953 and the facilities included two 500-gallon underground storage tanks (USTs), a fuel pump island and canopy, and a service bay with a “grease shed” and hoist. The 1953 gas station was demolished and replaced by Wagner’s Sav-way gas station. The new service building was reportedly built in the western central portion of the Site. The gas station was demolished in approximately 1972 and replaced by the current restaurant structure.

Site reconnaissance conducted by Aerotech identified a concrete patch with two apparent UST fill ports north of the restaurant, which Aerotech interpreted as evidence of the presence of possible USTs left in place. Aerotech identified the on-Site USTs, the historical Site use as gas stations, potential additional USTs, and the subsurface components of the hoist, as recognized environmental conditions (RECs). Site features are shown on Figure 2.

¹ Terracon Consultants, Inc. (Terracon) 2013. *Limited Site Investigation; Taqueria El Rinconsito Restaurant; 301 and 305 Central Avenue North & 215 East Smith Street; Kent; King County, Washington. Prepared for Vivolo Family Trust LLC c/o Union Bank, N.A. as Trustee, Orange, California. November 20.*

According to historical assessor records obtained by Terracon, Time Oil Co. was identified as the owner of a car wash building built in 1963 in the south central portion of the Site.

Terracon (2013) reviewed historical aerial photographs to obtain information on the history of development of the Property and nearby areas. The property was developed as a gas station as early as 1936 and all gas station structures had been removed by 1988. The current building was present in 1990. Two adjoining properties were reviewed; Strains Cascade Facility/Jack in the Box and Burdic Feed. Terracon concluded that, on the basis of releases and site investigations, the relative position of the properties, and groundwater flow direction, there is potential for an off-site release from the former Strains Cascade Facility to impact the Property.

2.3 **Physical Setting**

The following sections provide a summary of the geologic and hydrogeologic conditions beneath and in the vicinity of the Site.

2.3.1 **Regional Geology and Hydrogeology**

The Site lies within the Duwamish Valley, located between the Cascades and Puget Sound. The Duwamish Valley is a former extension of the Puget Sound waterway that became partly filled to above sea level with lacustrine and alluvial deposits. The alluvium, primarily from the Green and White rivers, forms a thick deposit that fills the deep glacial trough that is now the Duwamish Valley. Postglacial sediments have accumulated continuously in Duwamish Valley since retreat of the Vashon glacier. Shallow soils typically consist of channel gravels and sands that occur in present and abandoned channels of the main rivers or silt, clay and peat of overbank deposits (Mullineaux, 1970²).

Soils in the Duwamish Valley typically consist of the Oridia-Seattle-Woodinville association. These soils are generally poorly drained silt loams. The alluvium in much of the lower Duwamish Valley is characterized by medium- to medium to fine-grained sand and silt that was deposited in a delta complex when the valley was a submerged marine embayment; these sediments generally do not yield appreciable volumes of water to wells (Woodward et. al., 1995³).

The main aquifer in the area is the recent alluvial aquifer (Qal) that occurs with the Pacific/Algonia/Auburn area, and the Renton area. The Qal aquifer generally occurs at depths of less than 100 feet, is unconfined, and is in hydraulic connection with multiple surface water systems (White, Green and Cedar rivers). Aquifer recharge is from direct infiltration of the ground surface, and lateral groundwater inflow from deeper aquifers in adjacent uplands. Natural aquifer discharge is to the rivers.

² Donald R. Mullineaux. 1970. *Geology of the Renton, Auburn, and Black Diamond Quadrangle, King County Washington*. U.S. Geological Survey Professional Paper 672.

³ D.G. Woodward, F. A. Packard, N. P. Dion, and S. S. Sumioka. 1995. *Occurrence and Quality of Ground Water in Southwestern King County, Washington*. U.S. Geological Survey Water Resources Investigations Report 92-4098.

Other alluvial aquifers, mapped as Qvr, Qva, Qc₂, Qc₃ and Qc₃ are also present in the area and contribute to the Kent water supply system (Pace 2011⁴).

2.3.2 Groundwater Use

The City of Kent is served by multiple groundwater sources located throughout its water system service area. These include Clark Springs, Kent Springs, East Hill Wells, Garrison Well, Armstrong Springs Wells, Seven Oaks Well, Summit Well, O'Brian Well, 208th Street Well, and 212th Street Wells. These sources of supply are served by aquifers that underlie the Green and Cedar River basins. These sources are responsible for meeting all of Kent's existing and projected water supply demand (Pace 2011). It appears that additional water supply wells are also in use. According to Ecology's online well log database (Ecology 2015⁵), the City of Kent owns 17 water supply wells within a 1-mile radius of the Site, with well depths ranging from 23 to 598 feet with well casings ranging up to 36 inches.

2.3.3 Site Geology and Hydrogeology

The locations of borings and wells advanced at the Site are shown in Figure 3. Based on the results of the investigations summarized in later sections of this report, subsurface soil beneath the Property, to depth of 15 feet, consists primarily of sand with varying amounts of silt. Silt is present at the bottom of Boring HC07. Gravel and gravel fill are present in some borings to a depth of approximately 3 feet. Groundwater was present in borings at a depth of approximately 7 feet bgs.

2.4 Previous Investigations

The following sections summarize previous investigations, but do not include details of sampling and analysis. An RI report (to be prepared in the future) will provide a complete data set for the Property, including previous investigations, this SI, and future investigations designed to define the full extent of the Site, as defined by MTCA.

2.4.1 Release Discovery

Due diligence efforts conducted by others suggested that Time Oil Co. had previously owned a gasoline service station on the Property and a limited site investigation identified impacts to soil and groundwater exceeding MTCA Method A cleanup levels. Following this discovery, TOC Holdings Co. conducted subsurface investigations on the Property.

2.4.2 Limited Site Investigation

As noted in Section 2.2.1, a Phase I ESA determined that a gasoline service station that previously occupied the Property operated six USTs and associated product piping and pumps. The primary

⁴ Pace Engineering, Inc. 2011. City of Kent. 2011 Water Systems Plan. Prepared for the City of Kent Public Works Department.

⁵ Washington Department of Ecology. 2015. Washington State Well Log Viewer. Reviewed online at <https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap>. Accessed August 18, 2015.

objective of the subsequent LSI (Terracon 2013) was to investigate the RECs identified in the prior Phase I ESA completed by Aerotech. The scope of work for the LSI included a review of historical reports, investigation of known and suspected UST locations by geophysical survey, and exploratory excavations with concurrent assessment of potential impacts to soil and groundwater from releases from existing or previously undocumented USTs. The LSI confirmed the presence of a minimum of four USTs in the northeast portion of the Site and up to three possible USTs south of the restaurant.

Soil and groundwater samples were collected from seven borings, five near the USTs located on the northeast portion of the Site and two near suspected USTs located south of the restaurant. Fourteen soil samples were analyzed for gasoline-range petroleum hydrocarbons (GRPH) diesel-range hydrocarbons (DRPH), oil-range hydrocarbons (ORPH) and volatile organic compounds (VOCs) including benzene, ethylbenzene, toluene, xylenes (BTEX), acetone, n-propylbenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, p-isopropylbenzene, 1,2-dichloroethane, 1,2,3-trimethylbenzene, and naphthalenes. Seven groundwater samples were analyzed for GRPH, DRPH, ORPH, BTEX, n-propylbenzene, n-butylbenzene, sec-butylbenzene, 1,3-dichlorobenzene, isopropylbenzene, p-isopropylbenzene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2,3-trimethylbenzene, and naphthalenes.

GRPH, ethylbenzene, and naphthalene were detected in soil above their respective MTCA Method A cleanup levels from one boring (B-6) south of the restaurant. Groundwater collected from this same boring had exceedances of GRPH, diesel-range petroleum hydrocarbons (DRPH) and some volatile organic compounds (VOCs).

UST removal activities were postponed in order to prepare for the decommissioning of all tanks at once and to ensure sufficient time to address the City of Kent permitting requirements.

2.4.3 Interim Remedial Action

An interim remedial action to permanently close five of the USTs by removal and off-Site disposal, and one of the USTs by closure-in-place was completed in June 2014 (Terracon 2014⁶). In the northeast portion of the Site, one 6,000-gallon UST and one 5,000-gallon UST used to store gasoline (based on odors) were removed. In the area south of the restaurant, four USTs with capacities ranging from 500 to 800 gallons used to store gasoline (based on field observations and soil analytical results) were encountered. Three of the USTs were removed and one close to the East Smith Street ROW was decommissioned in place (Figure 2).

Sampling conducted during the interim remedial action included six confirmation samples and four soil stockpile composite samples from the UST excavation in the northeast area, 15 confirmation samples and five soil stockpile composite samples from the UST excavation south of the building, and 11

⁶ Terracon, 2014. *UST Decommissioning and Soil Interim Action Report. Taqueria El Rinconsito Restaurant 301/305 Central Avenue North & 215 East Smith Street. Kent, King County, Washington. July 3.*

confirmation samples and two soil stockpile composite samples were collected in an exploratory excavation in the drive-through east of the south UST excavation.

GRPH and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were either not detected or detected well below MTCA Method A cleanup levels in the confirmation and stockpile samples collected in the northeast area. One sample NSS-04 was also analyzed for polynuclear aromatic hydrocarbons (PAHs) using EPA Method 8270 and none were detected above the laboratory's method reporting limit (MRL). Based on these results, the stockpiled soil was returned to the excavation.

In the area south of the restaurant, eight of the 15 samples collected from the excavation sidewalls two of the five stockpile samples had GRPH and BTEX concentrations in excess of the MTCA Method A cleanup levels. Results from samples collected in the western portions of the excavation were generally below cleanup levels. The excavation was backfilled using clean stockpiled soil and clean imported fill.

In the drive-through area, 7 of 11 confirmation samples and one of the stockpile samples had GRPH and BTEX concentrations above MTCA Method A cleanup levels. Results from the northern part of the excavation were generally below cleanup levels. The excavation was backfilled using clean stockpiled soil and clean imported fill.

2.5 **Data Gaps**

Data from previous investigations on and adjacent to the Property were insufficient for defining the Site in accordance with WAC 173-340-350 based on the following:

- Hydrogeologic conditions at the Site had not been characterized.
- The locations, quantities, extents, and concentrations of all potential source(s) or release(s) had not been fully defined.
- The lateral and vertical distributions of hazardous substances at the Site had not been fully established.
- Data needed to evaluate potential exposure concerns at the Site were incomplete.

The scope of this SI included site characterization efforts needed to address data gaps and better define the Site.

3.0 PRE-INVESTIGATION ACTIVITIES

The following sections describe pre-investigation activities.

3.1 *Permits*

Prior to commencing work, HydroCon obtained a street use permit (Number CNST-2151834STU) from the City of Kent for the off-Site drilling in E. Smith Street.

3.2 *Health and Safety Plan*

HydroCon prepared a Site-specific health and safety plan (HASP) to govern health and safety protocols used during this investigation. Work was performed using Occupational Safety and Health Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, and protective boots. Daily tailgate health and safety meetings were conducted by HydroCon prior to the start of each day of field work.

3.3 *Underground Utility Locates*

Due to potential conflict during drilling activities within the public right-of-way and the potential for these utilities to act as preferential pathways/barriers for contaminant migration, an underground utility survey was completed. The Washington Utility Notification Center was notified (Ticket Number 15189264) who notified the following utilities who identified offsite utilities:

- Comcast Cable
- AT&T Corp
- King County Metro Sewer
- City Of Kent
- MCI
- Zayo FNA Abovenet
- Puget Sound Energy Electric
- Puget Sound Energy Gas
- CentryLink
- Sound Transit

In addition, a private locating company, Bravo Environmental, was retained to identify the location of onsite subsurface utilities and to clear specific boring locations located near potential utility conflicts. HydroCon instructed the surveyors (Axis Surveying and Mapping of Redmond, Washington) to measure each offsite and onsite utility line identified by the above, along with other features, to create a

scaled base map. The results of these efforts are shown on Figure 2 where the locations of water, sewer, storm, electrical, fiber optic, and gas lines are shown.

4.0 SUBSURFACE INVESTIGATION

The following sections of this report summarize the field and analytical methods used during the SI, the objectives and work completed for each phase of SI activities, and a discussion of the results.

4.1 *Field Methods*

Field methods utilized during the SI are summarized in the following sections.

4.1.1 **Soil Borings**

Environmental Services Network (ESN) was subcontracted to perform the drilling services. A total of 17 direct push borings (HC01 through HC17) and six borings for monitoring wells (MW01 through MW06) were advanced to a maximum depth of 15 feet bgs at the Site between June 29 and July 22, 2015 in an effort to evaluate the horizontal extent of the releases identified during previous investigations. Boring locations are shown on Figure 3. Borings were advanced at the following locations:

- HC01 through HC04, HC10, and MW03 were located near the impacted soils observed in the drive through excavation.
- HC05 through HC9 and MW04 were located in in the area of former pump islands northeast of the current Site building.
- HC11 through HC17 and MW01 and 03 were located south of the building in and south of the impacted soil observed near the four USTs.
- MW05 was located between the current Site building and the former USTs north of the building.
- MW06 was located as a downgradient well west of the current Site building.

Each boring was advanced in five-foot intervals to a completion depth up to 15 feet bgs. Continuous soil samples were collected using a five-foot long “macro” core tube sampler equipped with new, clear polyethylene liners.

Each sample core was inspected for lithologic composition, presence of water, and field screened for the presence of petroleum hydrocarbons (i.e., odor and organic vapors). The total organic vapor concentration of each sample was measured using a photoionization detector (PID). A portion of each soil sample was placed in a sealable plastic baggie. The tip of the PID was inserted into the plastic bag in the airspace above the soil sample and the PID measurement was recorded. The PID was calibrated before use at the Site to a test gas standard consisting of 100 part per million (ppm) isobutylene. Because several factors can affect PID readings (e.g. moisture, temperature, and background conditions), HydroCon determined that a value of 2 ppm or greater may indicate the presence of organic vapors originating from contaminants at the Site.

Boring logs detailing the lithology, field screening results, and sample depths are included as Appendix A. Selected soil samples (typically three per boring) were submitted to the laboratory based on sampling objectives (i.e., depth and soil type) and field screening results.

The selected soil samples were removed from the polyethylene tubing using a new pair of disposable gloves and placed directly into labeled laboratory-prepared jars and sealed with Teflon-lined lids. A portion of each sample was placed in a sealable plastic baggie for field screening purposes described in further detail below. Soil samples were placed into laboratory-supplied containers (utilizing 5035A field preservation) and immediately placed in an ice-filled cooler along with chain-of-custody documentation for shipment to Friedman & Bruya Laboratory in Seattle, Washington. A total of 73 soil samples were collected for laboratory analysis.

After the completion of soil sampling, borings HC01, HC02, HC04, HC05, HC07, HC08, and HC10 through HC17 were fitted with temporary wells constructed with a new 5-foot section of slotted polyvinyl chloride (PVC) well screen and blank PVC casing for the collection of groundwater samples. A minimum of 1 liter of water was purged from each temporary well prior to sample collection. The groundwater samples were collected from each temporary well using low flow sampling techniques. Each temporary well was sampled using a peristaltic pump and new, low-density polyethylene (LDPE) tubing. Groundwater samples were placed in laboratory-supplied containers.

All drilling and sampling tools were decontaminated between boring locations using a hot water pressure washer. All soil and water generated during purging and decontamination procedures was placed in a labeled 55-gallon drum and stored on Site pending disposal to a licensed disposal facility.

4.1.2 Monitoring Well Installation

A total of six borings were completed as monitoring wells using 2-inch diameter blank PVC casing flush threaded to 0.010-inch slotted well screen. The bottom of each monitoring well was fitted with a threaded PVC end cap, and the top of each well was fitted with a locking compression-fit well cap. The annulus of the monitoring wells was filled with clean 10/20 graded silica sand to a minimum height of 1 foot above the top of the screened interval. A bentonite seal with a minimum thickness of 1 foot was installed above the sand pack. The monitoring wells were completed at the surface with a flush-mounted, traffic-rated well box set in concrete. Well construction details are provided on the boring logs in Appendix A.

4.1.3 Well Development

HydroCon developed monitoring wells MW01 through MW06 (July 7, 2015) by surging and pumping techniques. A clean stainless steel bailer attached to a new length of poly rope was used to surge and bail turbid water from the well. The well was then pumped using new LDPE tubing attached to a peristaltic pump. This process was repeated until no further improvement in water clarity was recorded. The stainless steel bailer was decontaminated prior to use in each monitoring well. Details of well development are included in the *Well Development Forms* found in Appendix B.

4.1.4 Surveying

Monitoring well locations, top-of-casing elevations, and well monument surface elevations were surveyed on during the week of July 27, 2015 by Axis Survey & Mapping of Kirkland, Washington. Elevations are referenced to the North American Vertical Datum of 1988. The vertical and horizontal coordinates of the wells were surveyed relative to established datums in the area. The horizontal coordinates are relative to the North American Datum, 1983 (NAD83) and the vertical coordinates are relative to the North American Vertical Datum, 1988 (NAVD88).

The reference elevation of each monitoring well (at the inscribed reference mark on top of the PVC casing) is recorded on Table 3 and is used to calculate the groundwater surface elevation at each respective well (Figure 5).

4.1.5 Monitoring Well Sampling

Prior to obtaining depth-to-water measurements, HydroCon personnel opened the monitoring wells and permitted fluid levels to equilibrate with atmospheric pressure. Groundwater and product levels were measured relative to the top of the well casing to an accuracy of 0.01 feet using an electronic water meter and/or an oil/water interface probe.

Groundwater samples were collected from the monitoring wells in accordance with the EPA Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures⁷. Purging and sampling of each monitoring wells was performed using a peristaltic pump and dedicated polyethylene tubing at flow rates less than 500 milliliters per minute. Water quality was monitored during purging using a YSI water quality system or equivalent equipped with a flow-through cell. A separate turbidimeter was utilized for turbidity readings. Water quality parameters monitored and recorded included temperature, pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential.

Following purging, groundwater samples were collected in laboratory-prepared sample containers, labeled with a unique sample identification, placed on ice in a cooler, and transferred to Friedman & Bruya Laboratory in Seattle under standard chain-of-custody protocols for laboratory analysis. Groundwater Purge and Sample Collection Forms are included as Appendix C.

4.2 Laboratory Analysis

Select soil samples obtained from the soil borings were submitted for laboratory analysis of one or more of the following:

- GRPH by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-Gx
- DRPH and ORPH by Method NWTPH-Dx

⁷ U.S. Environmental Protection Agency (EPA). 1996. *Ground Water Issue; Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures EPA/540/S-95/504*. Office of Research and Development; Office of Solid Waste and Emergency Response. April.

- BTEX by EPA Methods 8021B and 8260C
- Volatile organic compounds (VOCs) by EPA Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270SIM or 8270OD
- Volatile and Extractable Petroleum Hydrocarbons (VPH/EPH)

Groundwater samples obtained from the monitoring wells and boreholes were submitted for the following laboratory analysis:

- GRPH by Method NWTPH-Gx
- DRPH and ORPH by Method NWTPH-Dx
- BTEX by EPA Methods 8021B and 8260C
- Selected VOCs including methyl tertiary-butyl ether (MTBE), 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), and naphthalene by EPA Method 8260C
- Dissolved (monitoring wells) and total (borehole water) lead by EPA Method 200.8
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270SIM or 8270OD

Friedman & Bruya Laboratories completed all of the soil and groundwater analysis at their Seattle laboratory. Laboratory analytical reports are included as Appendix D.

5.0 INVESTIGATION RESULTS

5.1 *Subsurface Conditions*

Boring logs are provided in Appendix A. The portion of the subject Site where drilling was completed is paved with asphalt that is approximately 3 inches thick. Similarly, 3 inches of asphalt was observed in the borings drilled in the E Smith Street right-of-way. Beneath the asphalt, the soil typically consisted of silty sand to a depth of about 3 feet followed by sand which extended down to the maximum depth explored (15 feet bgs). The silty sand was not present at all drilling locations. Gravel fill was present to a depth of 2 feet below the borings drilled in E Smith Street (HC12 through HC17).

Groundwater was first observed in the borings at a depth of 7 feet bgs.

5.2 *Field Screening Results*

The field screening results are summarized on the attached boring logs. Elevated PID readings (i.e. above 2.0 ppm) and hydrocarbon odors were detected at 15 of the 23 soil and monitoring well boring(s):

- HC01 – PID measurements of 15 and 9 ppm were observed at 10 and 12 feet bgs, respectively. A slight hydrocarbon odor was observed at 10 feet bgs.
- HC02 – PID measurements ranging from 2.6 to 305 ppm were observed at depths of 6 and 14 feet bgs. Strong hydrocarbon odors were observed at 7 feet bgs.
- HC03 – PID measurements ranging from 10 to 1,472 ppm were observed from depths between 8 to 15 feet bgs. Strong hydrocarbon odors were observed at 10 feet bgs.
- HC04 – A PID measurement of 2 ppm was observed at 6 feet bgs. No hydrocarbon odors were observed.
- HC07 – A PID measurement of 2.5 ppm was observed at 7 feet bgs. No hydrocarbon odors were observed.
- HC10 – PID measurements ranging from 2.7 to 394 ppm were observed from depths between 7 and 11 feet bgs. Strong hydrocarbon odors were observed at 7 to 9 feet bgs.
- HC11 – PID measurements ranging from 6.8 to 1,388 ppm were observed from depths between 5 and 13 feet bgs. Strong hydrocarbon odors were observed in the borehole.
- HC12 – PID measurements ranging from 2.2 to 1,127 ppm were observed from depths between 5 and 15 feet bgs. Strong hydrocarbon odors were observed in the borehole.
- HC13 – PID measurements ranging from 7.7 to 946 ppm were observed from depths between 5 and 15 feet bgs. Strong hydrocarbon odors were observed in the borehole.
- HC15 – PID measurements ranging from 7 to 210 ppm were observed from depths between 3 and 7 feet bgs. Strong hydrocarbon odors were observed at 3 to 5 feet bgs.

- HC16 – PID measurements ranging from 14 to 117 ppm were observed from depths between 3 and 8 feet bgs. Strong hydrocarbon odors were observed at 3 to 5 feet bgs.
- HC17 – PID measurements of 32 and 25 ppm were observed at 3 and 5 feet bgs, respectively. Moderate hydrocarbon odors were observed at 3 to 5 feet bgs.
- MW02 – PID measurements ranging from 7.3 to 51 ppm were observed at depths between 7 and 15 feet bgs. Moderate hydrocarbon odors were observed at 7 feet bgs.
- MW03 – PID measurements ranging from 6.6 to 646 ppm were observed at depths between 5 and 15 feet bgs. Strong hydrocarbon odors were observed at 5 to 12 feet bgs.
- MW05 – PID measurements of 28 and 10 ppm were observed at 7 and 8 feet bgs, respectively. Slight hydrocarbon odors were observed at 8 feet bgs.

5.3 Analytical Results

Summary analytical tables and the laboratory analytical report and chain-of-custody record are attached. The laboratory results were compared to the MTCA Method A cleanup levels. The following sections describe the results of the testing.

5.3.1 Soil Analytical Results

Soil analytical results for total petroleum hydrocarbons (TPH) and VOCs are reported as milligrams per kilogram (mg/kg) and are summarized in Table 1 and Figure 3. In the following discussion, soil sample IDs are in the form of HCxx-zz where xx is the location and zz is the depth, in feet.

DRPH was detected in 17 of the 73 samples collected at concentrations above the laboratory method reporting limit (MRL), ranging from 69 mg/kg to 6,700 mg/kg. Of the 17 samples with detected concentrations, 5 samples (HC10-07, HC11-05, HC11-07, HC12-05, and HC13-05) had concentrations above the MTCA Method A cleanup level. In addition, all 17 detections of DRPH were qualified ("x") by the laboratory as chromatographic patterns not resembling the fuel standard used for quantitation - except MW04-07 and MW05-08. Detected chromatographic patterns that do not match with laboratory diesel fuel standards suggest that the mass resolving as DRPH in the DRPH analyses are not DRPH but unregulated organic compounds generated from the abiotic and biotic degradation of GRPH (polar metabolites).

ORPH was detected above the laboratory MRL in three samples (Table 1); the sample collected at HC08 (at 5' bgs) exceeded the MTCA Method A cleanup level with a concentration of 2,800 mg/kg.

GRPH was detected in 24 of the 73 samples collected at concentrations above the laboratory MRL (Table 1), ranging from 3.6 mg/kg to 14,000 mg/kg. Of the 24 samples with detected concentrations, 13 samples (HC02-07, HC03-08, HC10-07, HC11-05, HC11-07, HC12-05, HC12-07, HC13-05, HC13-11, MW02-07, MW03-05, MW03-07, and MW03-12) had concentrations above the MTCA Method A cleanup level.

One or more BTEX constituents were detected in 10 of the 73 samples collected at concentrations above the laboratory MRLs (Table 1). The benzene concentrations detected in the samples HC10-07, HC11-05, HC11-07, HC12-05, HC12-07, HC13-05, HC13-11, MW02-07, MW03-05, MW03-07, and MW03-12 exceeded the MTCA Method A cleanup level of 0.03 mg/kg. None of the detected concentrations of toluene, ethylbenzene, or xylene exceeded their respective MTCA Method A cleanup level.

Four samples, HC11-05, HC11-07, HC12-05, and HC13-15, were analyzed for 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), MTBE, and naphthalene. These compounds were not detected above the laboratory MRL.

Two samples were analyzed for Semi-Volatile Organic Compounds (Table 2). None of the analytes were detected above the laboratory MRL in Sample HC11-07 and HC12-05, except phenanthrene, which was detected near the MRL in both samples. The results were qualified by the laboratory as exceeding holding time requirements.

One sample (MW03-07) was analyzed for VPH and EPH. The results for this sample are provided in Table 3.

5.3.2 Groundwater Analytical Results

Groundwater samples were collected from temporary monitoring wells installed in soil borings and in monitoring wells. The results of the analytical testing are presented in Tables 4 and 5. TPH and BTEX results are also provided on Figure 4.

5.3.2.1 Borehole Groundwater

Water from 14 of the 17 temporary boreholes was collected and analyzed to assess the lateral extent of contamination and aid in the placement of permanent monitoring wells.

GRPH was detected in all but three borings and the results indicated that the samples collected from six locations, HC02, HC03, HC10, HC11, HC12, and HC13, exceeded the MTCA Method A cleanup level. DRPH was detected in the samples collected from all borings with HC02, HC03, HC10, HC11, HC12, and HC13 exceeding the MTCA Method A cleanup level. ORPH was detected in three samples. The samples collected from HC02 and HC13 had concentrations above the MCTA Method A cleanup level. All DRPH and ORPH detections were qualified ("x") by the laboratory as chromatographic patterns not resembling the fuel standard used for quantitation. As with the soil results, flagged DRPH and ORPH results suggest that reported mass of DRPH and ORPH is actually degraded GRPH.

Benzene was detected in 10 borehole water samples. The samples collected from HC02 and HC13 had detections above the MTCA Method A cleanup level. Toluene, ethylbenzene, and total xylenes were detected in the same borehole; however, none of these concentrations exceeded Method A cleanup levels.

Lead samples from the boreholes were not filtered prior to analysis. Lead was detected in all the borehole water samples with 10 samples HC02, HC07, HC10, HC11, HC12, HC13, HC14, HC15, HC16, and HC17 exceeding the Method A cleanup level.

5.3.2.2 Monitoring Well Analytical Results

Analytical results for groundwater samples collected from monitoring wells are summarized below:

- **MW01.** GRPH, DRPH, ORPH, BTEX, and lead were not detected above MRLs in this well.
- **MW02.** GRPH and DRPH, BTEX and lead were detected above MRLs. GRPH, DRPH and benzene exceed the cleanup levels at concentrations of 4,100 µg/L, 4,600 µg/L, and 8.1 µg/L, respectively. ORPH was not detected. MW02 was also analyzed for SVOCs and none were detected above the laboratory MRL (Table 5).
- **MW03.** GRPH and DRPH, BTEX and lead were detected above MRLs. GRPH and DRPH exceed the cleanup levels at concentrations of 3,900 µg/L and 4,400 µg/L, respectively. ORPH was not detected.
- **MW04.** GRPH, DRPH, ORPH, BTEX, and lead were not detected above MRLs in this well.
- **MW05.** GRPH, ORPH, BTEX, and lead were not detected above MRLs in this well. DRPH was detected, but below the cleanup level.
- **MW06.** GRPH, DRPH, ORPH, BTEX, and lead were not detected above MRLs in this well.
- All DRPH and ORPH detections were qualified ("x") by the laboratory as chromatographic patterns not resembling the fuel standard used for quantitation. Thus the DRPH and ORPH results are questionable as representative of actual DRPH or ORPH.

5.4 Groundwater Flow Direction and Gradient

The elevation of the groundwater in the monitoring wells was calculated using the elevation of the top of the casing (at the scribed reference mark) and subtracting the depth to water measurement (Table 4). Static water levels in the six wells ranged from 5.96 to 7.25 feet below the top of the PVC well casing on July 9, 2015. Groundwater elevations ranged from 35.53 to 35.60 feet above mean sea level. HydroCon prepared a groundwater elevation contour from the data set to illustrate the direction of groundwater flow at the Site (Figure 5). The groundwater flow direction is to the west with a shallow gradient beneath the Site building (0.001 ft/ft).

6.0 DISCUSSION

6.1 *Soil Conditions*

Based on the results of field screening and laboratory analysis, DRPH (flagged as potentially representing degraded GRPH), GRPH, and/or select BTEX constituents were observed above MTCA Method A cleanup levels in the soil samples in the southwest corner of the Site. This area of impact appears to be constrained to the south by the lack of detections above cleanup levels in boreholes HC15, HC16, and HC17 and to the west by boreholes HC14, MW01, and HC01. The area to the east is not constrained. An area north of the existing Site building at HC08 is also impacted. Review of all historical data and additional borings to define the eastern bounds of contamination are needed to refine the extent of impacted soil.

6.2 *Groundwater Conditions*

Similarly, the results of the groundwater sampling indicate that the southeast portion of the Site contains impacted groundwater as indicated by results from MW02, MW03, HC02, HC04, and HC10 through HC13. Impacts to the east of the property boundary are not constrained. Further investigation is necessary to determine the full extents of the groundwater plume. Although there have not been significant groundwater impacts observed in the downgradient direction to the west as evidenced by low or non-detect concentrations at MW01, HC01, and MW06, the potential exists for the contaminated groundwater plume to migrate to this location in the future based on the observed west-northwest groundwater flow direction.

Based on the results of the lead analysis performed on the samples collected from the monitoring wells, the elevated lead concentrations in the temporary borings appear to be an artifact from sediment rich samples produced using the direct push method. Future monitoring events should include field filtering and preservation of the groundwater samples (after appropriate purging) for analysis of dissolved lead.

7.0 RECOMMENDATIONS

Based on the results of the soil and groundwater sampling, HydroCon makes the following recommendations:

- Additional investigation appears to be warranted to the southwest and west of the building based on the west-northwest groundwater flow direction determined from this investigation. Although the groundwater quality in well MW01 is not significantly impacted currently, the potential exists for the contaminated groundwater plume to migrate to the west-northwest from the area of contamination confirmed in southeastern portion of the property.
- Additional borings are warranted on the property in the area of boring location HC08 and in the ROW of Central Avenue North to define the east bounds of contamination seen in HC10, HC11, and MW03.
- Perform preliminary vapor intrusion (VI) sampling (soil gas and/or slab soil gas sampling) near or within restaurant.
- Quarterly groundwater monitoring should continue to monitor the ongoing groundwater quality at the Site.
- Prepare an RI report and FS at the completion of Site characterization to select the applicable remediation technology(s) to clean up the Site.
- Implement the selected remedial action.

8.0 QUALIFICATIONS

HydroCon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. HydroCon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that HydroCon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

Findings and conclusions resulting from these services are based upon information derived from the on-Site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable or not present during these services, and we cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of **TOC Holding Co.** This report may not be used or relied upon by any other party without the written consent of HydroCon. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

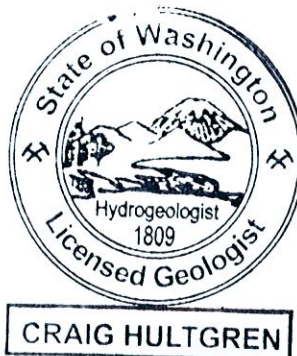
Signature:

Report Prepared By:

Report Reviewed By:

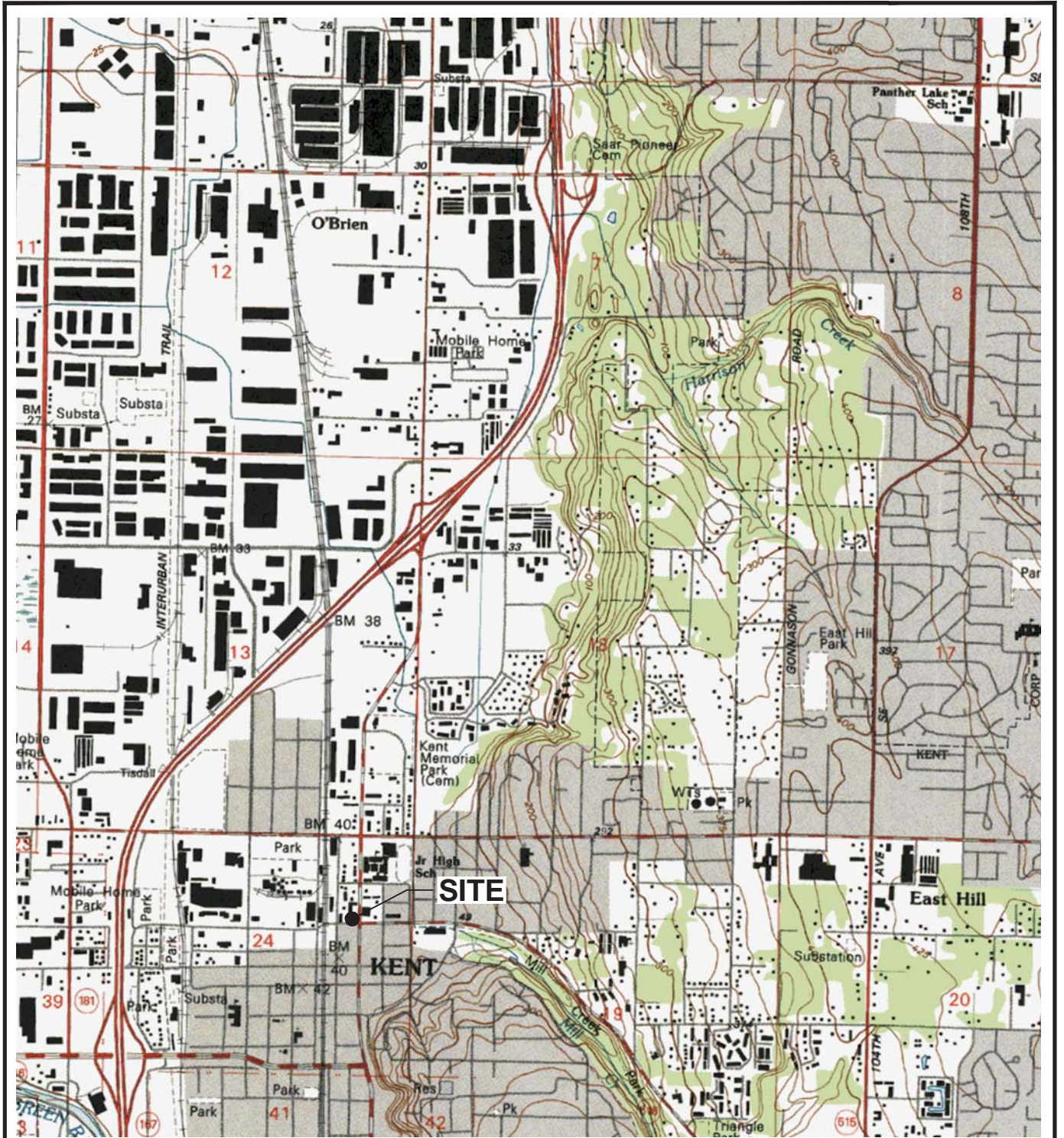


Nick Varnum, LHG

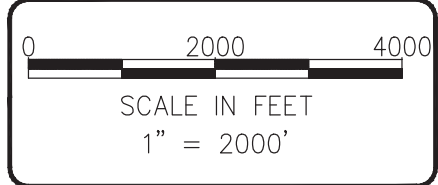


Craig Hultgren, LHG

FIGURES



NOTE(S):
 USGS, RENTON QUADRANGLE
 WASHINGTON-KING CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)

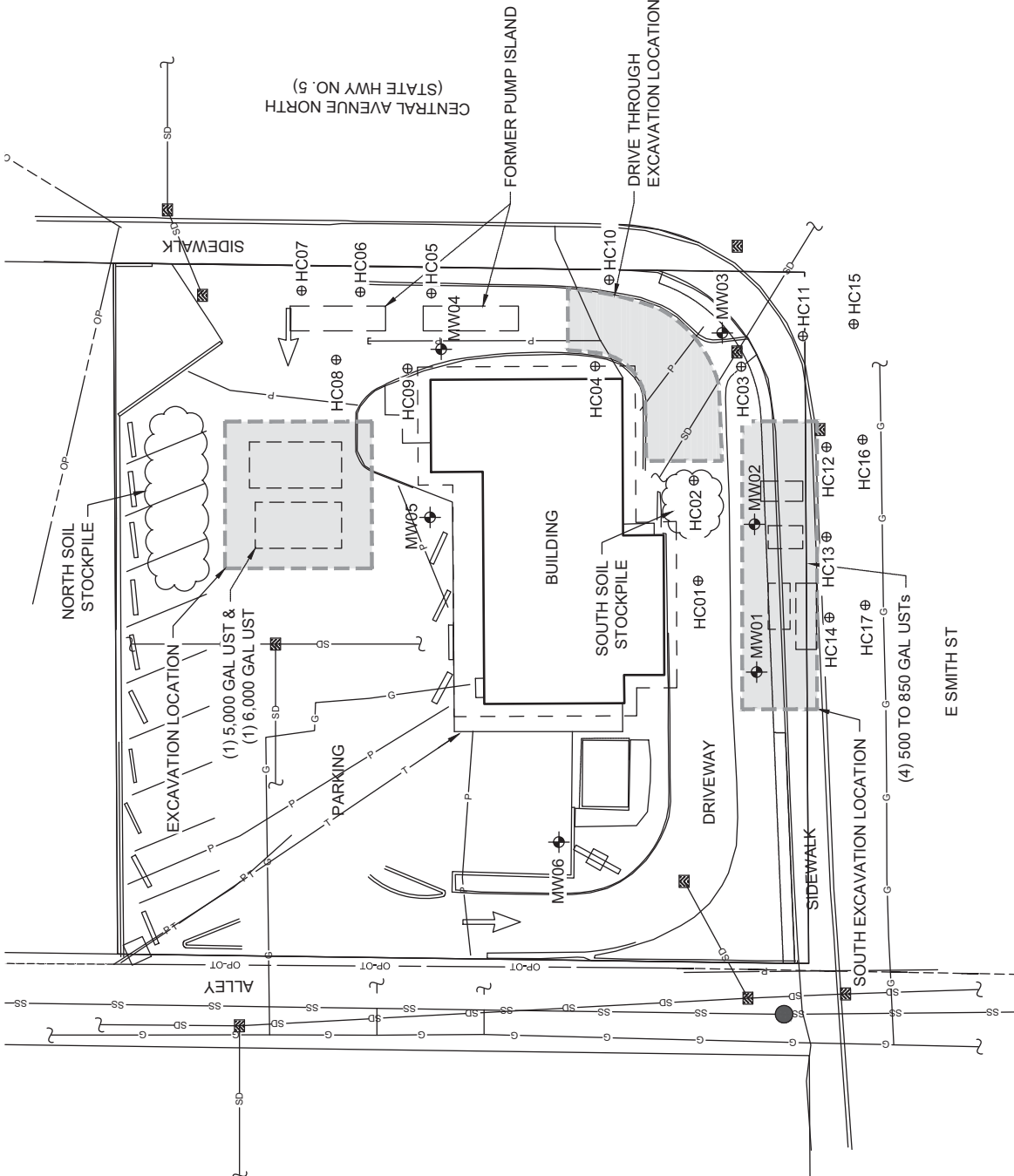


DATE: 9-8-15
 DWN: JJT
 CHK: NV
 APPROVED: CH
 PRJ. MGR: RH
 PROJECT NO:
 01-323

FIGURE 1
 SITE LOCATION MAP
 TOC HOLDING CO. FACILITY NO. 01-323
 301 N CENTRAL AVE
 KENT, WA.

LEGEND

- BUILDING
- MONITORING WELL
MW01
- CATCH BASIN
- POWER
- GAS
- SANITARY SEWER
- STORM
- TELEPHONE
- OVERHEAD POWER
- EXCAVATION LOCATIONS
- BORING LOCATIONS (HYDROCON 2015)
HC01



DATE: 9-28-15
 DWN: JJT
 CHK: NV
 APPROVED: CH
 PRJ. MGR: CH
 PROJECT NO: 01-323

FIGURE 2
 SITE FEATURES AND UTILITIES
 TOC HOLDING CO. FACILITY NO. 01-323
 301 N CENTRAL AVE
 KENT, WA

Well ID	Analytical Results (mg/kg)								
	DRPH	ORPH	GRPH	Benzene	Toluene	Ethylbenzene	Xylene Total		
WA Method A	2,000	2,000	100/30	0.03	7	6	9		
HC02-07	400 x	<2.50	560	<0.03	<0.05	<0.05	<0.15		
HC03-08	1,200 x	<2.50	1,100	<0.03	<0.05	1.9	<0.15		
HC08-05	250 x	2,800	<2	<0.03	<0.05	<0.05	<0.15		
HC10-07	4,600 x	<2.50	1,600	<0.03	<0.05	0.081	<0.15		
HC11-05	2,200 x	<2.50	3,000 ip	0.088	0.094	0.36	0.21		
HC11-07	3,500 x	<2.50	2,400	0.11	0.056	0.69	0.27		
HC12-05	6,700 x	<2.50	14,000 ip	0.064	0.066	1.8	<0.15		
HC12-07	1,700 x	<2.50	930	0.068	0.067	0.8	0.22		
HC13-05	5,700 x	<2.50	9,100 ip	<0.03	<0.05	0.31	<0.15		
MW02-07	400 x	<2.50	630	<0.03	<0.05	1	<0.15		
MW03-05	1,500 x	<2.50	1,200 ip	<0.03	<0.05	0.22	<0.15		
MW03-07	330 x	<2.50	5,100 ip	<0.03	<0.05	0.53	<0.15		
MW03-12	640 x	<2.50	380	<0.03	<0.05	0.19	<0.15		

Notes:
Red denotes concentration exceeds MTCA Method A cleanup level.
Results shown only for samples with detections exceeding MTCA Method A cleanup levels.
See Table 1 for complete results.
Lab Qualifiers:
 x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

LEGEND

- BUILDING
- MONITORING WELL
- BORING LOCATIONS (HYDROCON 2015)
- CATCH BASIN
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- *RED INDICATES IMPACTED SOIL**

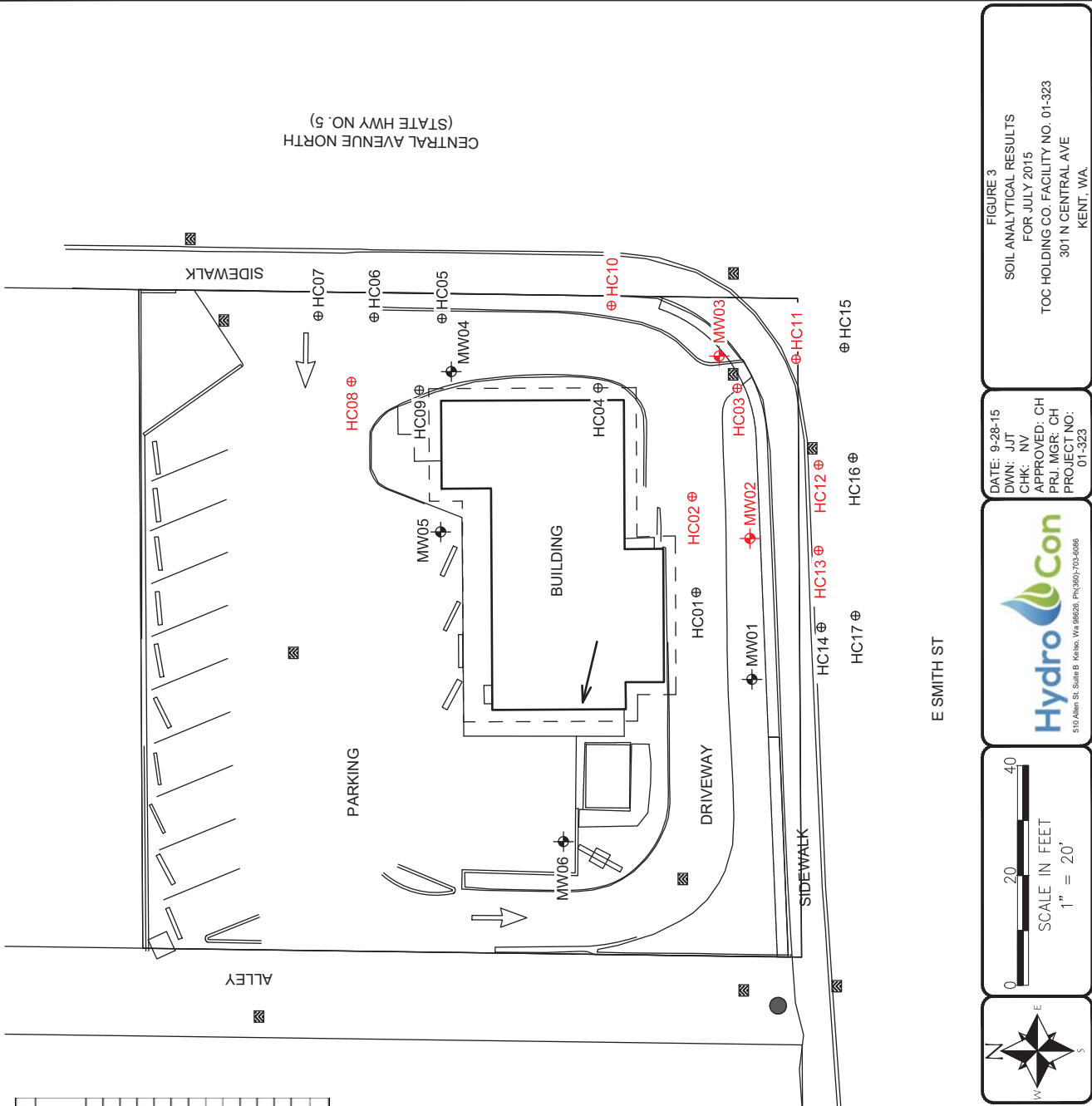


FIGURE 3
 SOIL ANALYTICAL RESULTS
 FOR JULY 2015
 TOC HOLDING CO. FACILITY NO. 01-323
 301 N CENTRAL AVE
 KENT, WA

DATE: 9-28-15
 DWN: JJT
 CHK: NV
 APPROVED: CH
 PRJ. MGR: CH
 PROJECT NO:
 01-323

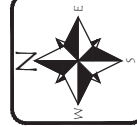


Well ID	Analytical Results (ug/L)									
	DRPH 500	ORPH 500	GRPH 800/1,000	Benzene 5	Toluene 1,000	Ethylbenzene 700	Xylene Total 1,000	Lead (filtered) 15		
Temporary Borehole Wells										
HC01	350 x	<250	480	0.71	6.8	1.8	14.1	1.21		
HC02	19,000 x	510 x	6,900	20	15	40	21.8	63.8		
HC04	740 x	<250	1,200	0.44	4.4	1.3	10.3	1.75		
HC05	90 x	<250	100	0.49	5.6	1.5	10.5	14.9		
HC07	140 x	<250	130	0.85	9	2.2	17.2	16.1		
HC08	110 x	<250	<100	0.52	5.2	1.2	9.1	3.92		
HC10	1,600 x	<250	1,900	0.75	8.1	3.8	17.1	17.3		
HC11	7,500 x	290 x	5,000	2.9	<1	11	3.9	88.2		
HC12	13,000 x	<250	5,100	1.5	1.2	9.9	<3	43.2		
HC13	1,100 x	5,800	5,800	5.4	1.5	6.6	5.6	77.6		
HC14	170 x	<250	<100	<0.35	<1	<1	<3	62.1		
HC15	150 x	<250	290	<0.35	<1	<1	<3	23		
HC16	180 x	<250	190	<0.35	<1	<1	<3	18.9		
HC17	100 x	<250	<100	<0.35	<1	<1	<3	23.4		
Monitoring Wells										
MW01	67 x	<250	<100	<0.35	<1	<1	<3	<1		
MW02	4,600 x	<250	4,100	8.1	4.8	36	9.7	1.68		
MW03	4,400 x	<250	3,900	0.76	1.4	26	4.6	<1		
MW04	<50	<250	<100	<0.35	<1	<1	<3	<1		
MW05	100 x	<250	<100	<0.35	<1	<1	<3	<1		
MW06	<50	<250	<100	<0.35	<1	<1	<3	<1		

Notes:
Red denotes concentration exceeds MTCA Cleanup Level for Groundwater.
Lab Qualifiers:
 x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

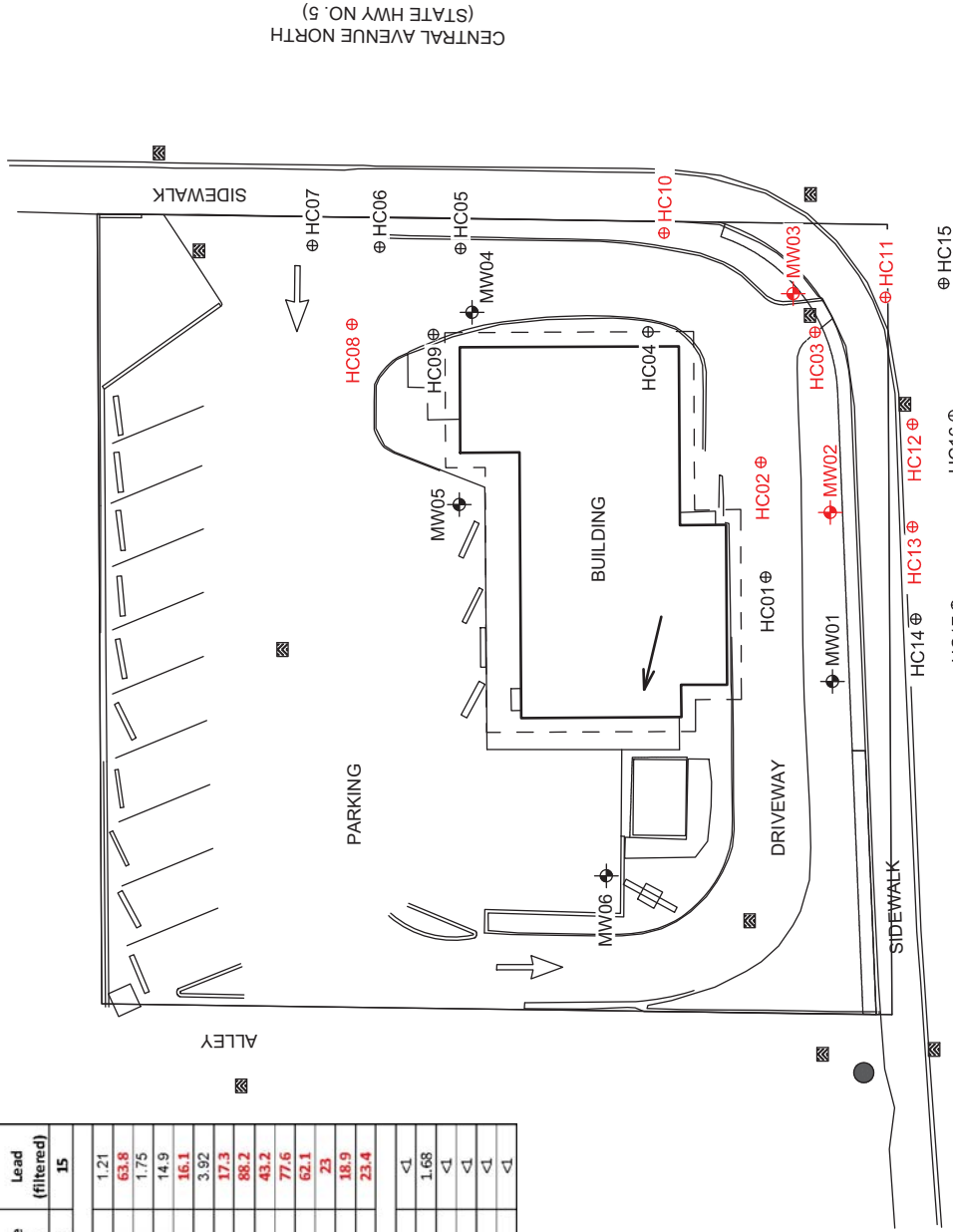
LEGEND

- BUILDING
- MONITORING WELL
- BORING LOCATIONS (HYDROCON 2015)
- CATCH BASIN
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- *RED INDICATES IMPACTED GROUNDWATER**



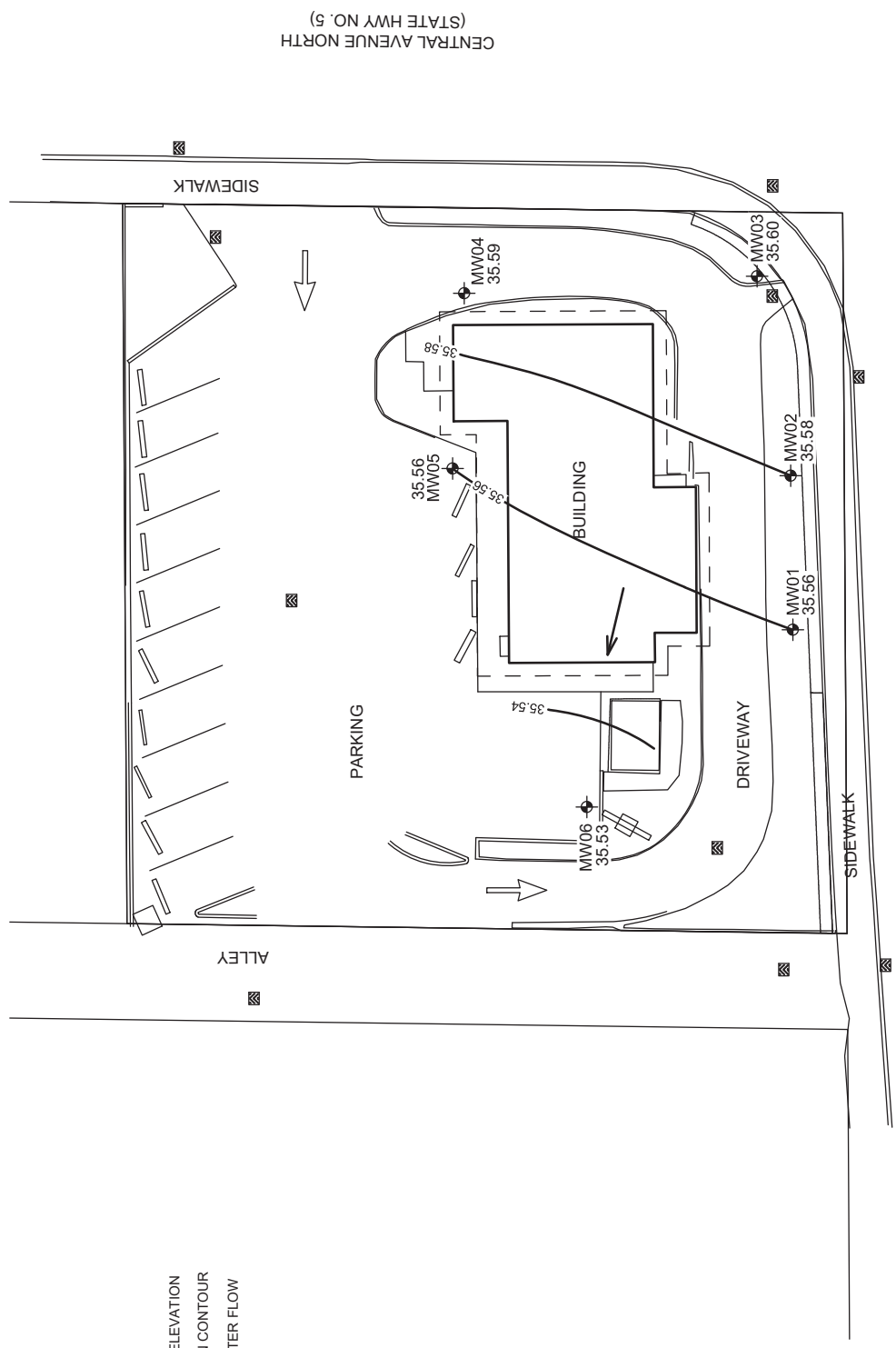
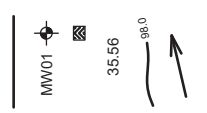
DATE: 9-28-15
 DWN: JTT
 CHK: NV
 APPROVED: CH
 PRJ. MGR: CH
 PROJECT NO:
 01-323

FIGURE 4
 GROUNDWATER ANALYTICAL RESULTS
 FOR JULY 2015
 TOC HOLDING CO. FACILITY NO. 01-323
 301 N CENTRAL AVE
 KENT, WA



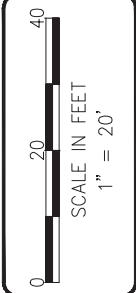
LEGEND

- BUILDING
- MONITORING WELL
- CATCH BASIN
- GROUNDWATER SURFACE ELEVATION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION



E SMITH ST

CENTRAL AVENUE NORTH
(STATE HWY NO. 5)



DATE: 11-4-15
 DWN: JJT
 CHK: NV
 APPROVED: CH
 PRJ. MGR: CH
 PROJECT NO: 01-323

FIGURE 5
 GROUNDWATER ELEVATION CONTOURS
 FOR JULY 2015
 TOC HOLDING CO. FACILITY NO. 01-323
 301 N CENTRAL AVE
 KENT, WA

TABLES



Table 1
 Soil Analytical Results - Total Petroleum Hydrocarbons and Volatile Organic Compounds
 TOC Holding Co. Facility No. 01-323
 301 North Central Avenue
 Kent, Washington

	NWTPH-Dx		NWTPH-Gx	SW8260C							
	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
WA Method A Cleanup for Unrestricted Land Use	2,000	2,000		0.03	7	6	9	0.005		0.1	5
Benzene (Non Detect)			100								
Benzene (Detect)			30								

Field ID	Date	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
HC01-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC01-07	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC01-10	6/29/2015	<50	<250	3	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC01-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC02-05	6/29/2015	<50	<250	8.2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC02-07	6/29/2015	400 x	<250	560	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC02-15	6/29/2015	<50	<250	3.9	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC03-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC03-08	6/29/2015	1,200 x	<250	1,100	<0.03	<0.05	1.9	<0.15	-	-	-	-
HC03-15	6/29/2015	<50	<250	3.6	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC04-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC04-07	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC04-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC05-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC05-07	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	0.241	-	-	-	-
HC05-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC06-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC06-07	6/29/2015	<50	<250	<2	<0.03	<0.05	0.069	0.47	-	-	-	-
HC06-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC07-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC07-07	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	0.19	-	-	-	-
HC07-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC08-05	6/29/2015	250 x	2,800	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC08-07	6/29/2015	69 x	760	<2	<0.03	<0.05	<0.05	0.222	-	-	-	-
HC08-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC09-05	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC09-07	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC09-15	6/29/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC10-05	7/7/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC10-07	7/7/2015	4,600 x	<250	1,600	<0.03	<0.05	0.081	<0.15	-	-	-	-
HC10-15	7/7/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-



Table 1
 Soil Analytical Results - Total Petroleum Hydrocarbons and Volatile Organic Compounds
 TOC Holding Co. Facility No. 01-323
 301 North Central Avenue
 Kent, Washington

	NWTPH-Dx		NWTPH-Gx	SW8260C							
	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
WA Method A Cleanup for Unrestricted Land Use	2,000	2,000		0.03	7	6	9	0.005		0.1	5
Benzene (Non Detect)			100								
Benzene (Detect)			30								

Field ID	Date	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
HC11-05	7/21/2015	2,200 x	<250	3,000 ip	0.088	0.094	0.36	0.21	<0.05	<0.05	<0.05	0.21
HC11-07	7/21/2015	3,500 x	<250	2,400	0.11	0.056	0.69	0.27	<0.05	<0.05	<0.05	<0.05
HC11-10	7/21/2015	<50	<250	25	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC11-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC12-05	7/21/2015	6,700 x	<250	14,000 ip	0.064	0.066	1.8	<0.15	<0.05	<0.05	<0.05	<0.05
HC12-07	7/21/2015	1,700 x	<250	930	0.068	0.067	0.8	0.22	-	-	-	-
HC12-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC13-05	7/21/2015	5,700 x	<250	9,100 ip	<0.03	<0.05	0.31	<0.15	<0.05	<0.05	<0.05	<0.05
HC13-11	7/21/2015	<50	<250	450	0.055	<0.05	0.11	<0.15	-	-	-	-
HC13-15	7/21/2015	<50	<250	15	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC14-05	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC14-07	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC14-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC15-05	7/21/2015	<50	<250	34	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC15-07	7/21/2015	<50	<250	54	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC15-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC16-05	7/21/2015	<50	<250	14	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC16-07	7/21/2015	<50	<250	4.5	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC16-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC17-05	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC17-07	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
HC17-15	7/21/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW01-05	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW01-07	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW01-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW02-05	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW02-07	6/30/2015	400 x	<250	630	<0.03	<0.05	1	<0.15	-	-	-	-
MW02-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW03-05	6/30/2015	1,500 x	<250	1,200 ip	<0.03	<0.05	0.22	<0.15	-	-	-	-
MW03-12	6/30/2015	640 x	<250	380	<0.03	<0.05	0.19	<0.15	-	-	-	-
MW03-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW04-05	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW04-07	6/30/2015	85 x	1,100	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW04-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-



Table 1
 Soil Analytical Results - Total Petroleum Hydrocarbons and Volatile Organic Compounds
 TOC Holding Co. Facility No. 01-323
 301 North Central Avenue
 Kent, Washington

	NWTPH-Dx		NWTPH-Gx	SW8260C							
	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
WA Method A Cleanup for Unrestricted Land Use	2,000	2,000		0.03	7	6	9	0.005		0.1	5
Benzene (Non Detect)			100								
Benzene (Detect)			30								

Field ID	Date	Diesel Range Organics	Oil Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	1,2-dibromoethane	1,2-dichloroethane	MTBE	Naphthalene
MW05-05	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW05-08	6/30/2015	350	<250	18	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW05-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW06-05	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW06-06	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-
MW06-15	6/30/2015	<50	<250	<2	<0.03	<0.05	<0.05	<0.15	-	-	-	-

Notes:

Red denotes concentration exceeds MTCA Method A cleanup level.
 Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
 MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

Lab Qualifiers:

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
 x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

- = not measured/not analyzed
 < = not detected at a concentration exceeding the laboratory MRL shown
 mg/kg = milligrams per kilogram
 EPA = U.S. Environmental Protection Agency
 MTBE = methyl tertiary-butyl ether
 MTCA = Washington State Model Toxics Control Act



Table 2
 Soil Analytical Results - Semi-Volatile Organic Compounds
 TOC Holding Co. Facility No. 01-323
 301 North Central Avenue
 Kent, Washington

	unit	WA Method A Cleanup for Unrestricted Land Use	7/21/2015	7/21/2015
			HC11-07	HC12-05
SemiVols				
1-Methylnaphthalene	mg/kg		-	-
2-methylnaphthalene	mg/kg		-	-
Acenaphthene	mg/kg		<0.01 ht	0.016 ht
Acenaphthylene	mg/kg		<0.01 ht	<0.01 ht
Anthracene	mg/kg	0.1	<0.01 ht	0.016 ht
Benz(a)anthracene	mg/kg		<0.01 ht	0.027 ht
Benzo(a) pyrene	mg/kg		<0.01 ht	0.018 ht
Benzo(b)fluoranthene	mg/kg		<0.01 ht	0.022 ht
Benzo(g,h,i)perylene	mg/kg		<0.01 ht	<0.01 ht
Benzo(j,k)fluoranthene	mg/kg		-	-
Benzo(k)fluoranthene	mg/kg		<0.01 ht	<0.01 ht
Chrysene	mg/kg		<0.01 ht	0.035 ht
Dibenz(a,h)anthracene	mg/kg		<0.01 ht	<0.01 ht
Fluoranthene	mg/kg	5	<0.01 ht	0.07 ht
Fluorene	mg/kg		<0.01 ht	0.034 ht
Indeno(1,2,3-c,d)pyrene	mg/kg		<0.01 ht	<0.01 ht
Naphthalene	mg/kg		<0.01 ht	<0.01 ht
Phenanthrene	mg/kg		0.021 ht	0.12 ht
Pyrene	mg/kg		<0.01 ht	0.093 ht

Notes:

Samples analyzed by Fremont Analytical, of Seattle, Washington or OnSite Environmental, of Redmond, Washington.
 MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code,
 revised November 2007.

SemiVols analyzed by SW 8270SIM or SW8270D.

< = not detected at a concentration exceeding the laboratory MRL shown

mg/kg = milligrams per kilogram

Lab Qualifiers:

ht - The analysis was performed outside the method or client-specified holding time requirement.



Table 3

Soil Analytical Results - Volatile and Extractable Petroleum Hydrocarbons

TOC Holding Co. Facility No. 01-323

301 North Central Avenue

Kent, Washington

			7/22/2015
	unit	WA Method A Cleanup for Unrestricted Land Use	MW03-07
NWEPH			
EPH C10-C12 Aliphatics	mg/kg		264
EPH C10-C12 Aromatics	mg/kg		81.1
EPH C12-C16 Aliphatics	mg/kg		62.9
EPH C12-C16 Aromatics	mg/kg		29.2
EPH C16-C21 Aliphatics	mg/kg		<5.02
EPH C16-C21 Aromatics	mg/kg		6.5
EPH C21-C34 Aliphatics	mg/kg		6.27
EPH C21-C34 Aromatics	mg/kg		8.09
EPH C8-C10 Aliphatics	mg/kg		293
EPH C8-C10 Aromatics	mg/kg		12.2
NWVPH			
VPH C10-C12 Aliphatics	mg/kg		32.2
VPH C10-C12 Aromatics	mg/kg		123
VPH C12-C13 Aromatics	mg/kg		134
VPH C5-C6 Aliphatics	mg/kg		6.98 q
VPH C6-C8 Aliphatics	mg/kg		64.2
VPH C8-C10 Aliphatics	mg/kg		38.8
VPH C8-C10 Aromatics	mg/kg		102
Benzene	mg/kg	0.03	0.524
Toluene	mg/kg	7	1.57
Ethylbenzene	mg/kg	6	2.64
MTBE	mg/kg	0.1	<0.214 ec
Naphthalene	mg/kg	5	4.73
Xylene Total	mg/kg	9	5.81

Notes:

Red denotes concentration exceeds MTCA Method A cleanup level.

Samples analyzed by Fremont Analytical, of Seattle, Washington.

MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

< = not detected at a concentration exceeding the laboratory MRL shown

mg/kg = milligrams per kilogram

Lab Qualifiers:

q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria and is not within established control limits.

ec - Method reporting limit exceeds Clean Up Level.



Table 4
 Groundwater Analytical Results - Total Petroleum Hydrocarbons, Volatile Organic Compounds, and Lead
 TOC Holding Co. Facility No. 01-323
 301 North Central Avenue
 Kent, Washington

Measurement			NWTPH-Dx		NWTPH-Gx	SW8260C								EPA200.8	
Top of Casing	Depth to Groundwater	Groundwater Elevation	Diesel Range Organics	Residual Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	MTBE	EDB	EDC	Lead (total)	Lead (filtered)
feet	feet	feet	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WA Method A Cleanup for Groundwater			500	500		5	1,000	700	1,000	160	20	0.01	5	15	15
Benzene (Non Detect)					1,000										
Benzene (Detect)					800										

Field ID	Date																
Temporary Borehole Wells																	
HC01	7/7/2015	-	-	-	350 x	<250	460	0.71	6.8	1.8	14.1	-	-	-	-	1.21	-
HC02	7/7/2015	-	-	-	19,000 x	510 x	6,900	20	15	40	21.8	-	-	-	-	63.8	-
HC04	7/7/2015	-	-	-	740 x	<250	1,200	0.44	4.4	1.3	10.3	-	-	-	-	1.75	-
HC05	7/7/2015	-	-	-	90 x	<250	100	0.49	5.6	1.5	10.5	-	-	-	-	14.9	-
HC07	7/7/2015	-	-	-	140 x	<250	130	0.85	9	2.2	17.2	-	-	-	-	16.1	-
HC08	7/7/2015	-	-	-	110 x	<250	<100	0.52	5.2	1.2	9.1	-	-	-	-	3.92	-
HC10	7/7/2015	-	-	-	1,800 x	<250	1,900	0.75	8.1	3.8	17.1	-	-	-	-	17.3	-
HC11	7/21/2015	-	-	-	7,500 x	290 x	5,000	2.9	<1	11	3.9	-	-	-	-	88.2	-
HC12	7/21/2015	-	-	-	1,900 x	<250	5,100	1.5	1.2	9.9	<3	-	-	-	-	43.2	-
HC13	7/21/2015	-	-	-	13,000 x	1,100 x	5,800	5.4	1.5	6.6	5.6	-	-	-	-	77.6	-
HC14	7/21/2015	-	-	-	170 x	<250	<100	<0.35	<1	<1	<3	-	-	-	-	62.1	-
HC15	7/21/2015	-	-	-	150 x	<250	290	<0.35	<1	<1	<3	-	-	-	-	23	-
HC16	7/21/2015	-	-	-	180 x	<250	190	<0.35	<1	<1	<3	-	-	-	-	18.9	-
HC17	7/22/2015	-	-	-	100 x	<250	<100	<0.35	<1	<1	<3	-	-	-	-	23.4	-
Monitoring Wells																	
MW01	7/9/2015	42.81	7.25	35.56	67 x	<250	<100	<0.35	<1	<1	<3	-	-	-	-	-	<1
MW02	7/9/2015	42.31	6.73	35.58	4,600 x	<250	4,100	8.1	4.8	36	9.7	46	<1	<1	<1	-	1.68
MW03	7/9/2015	41.93	6.33	35.60	4,400 x	<250	3,900	0.76	1.4	26	4.6	29	<1	<1	<1	-	<1
MW04	7/9/2015	41.55	5.96	35.59	<50	<250	<100	<0.35	<1	<1	<3	-	-	-	-	-	<1
MW05	7/9/2015	41.79	6.23	35.56	100 x	<250	<100	<0.35	<1	<1	<3	-	-	-	-	-	<1
MW06	7/10/2015	42.13	6.6	35.53	<50	<250	<100	<0.35	<1	<1	<3	-	-	-	-	-	<1



Measurement			NWTPH-Dx		NWTPH-Gx	SW8260C								EPA200.8	
Top of Casing	Depth to Groundwater	Groundwater Elevation	Diesel Range Organics	Residual Range Organics	Gasoline Range Organics	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	MTBE	EDB	EDC	Lead (total)	Lead (filtered)
feet	feet	feet	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WA Method A Cleanup for Groundwater			500	500		5	1,000	700	1,000	160	20	0.01	5	15	15
Benzene (Non Detect)					1,000										
Benzene (Detect)					800										

Field ID	Date																
MW03	7/9/2015	41.93	6.33	35.6	4,400 x	<250	3,900	0.76	1.4	26	4.6	29	<1	<1	<1	-	<1
MW99	7/10/2015	-	-	-	4,400 x	<250	4,200	0.79	1.3	26	4.5	-	-	-	-	-	<1
RPD		-	-	-	-	-	7	4	7	-	2	-	-	-	-	-	-

$RPD = (| V1 - V2 | / ((V1 + V2)/2)) * 100$

Acceptance Criteri RPD = relative percent difference

V1 = larger of the two duplicate results (i.e., the highest dedicated concentration)

V2 = smaller of two duplicate results (i.e., the lowest dedicated concentration)

Notes

Red denotes concentration in excess of MTCA Cleanup Level for Groundwater.

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington

MTCA Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

Lab Qualifiers

x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

- = not measured/not analyzed

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

EDB = 1,2-dibromoethane (ethylene dibromide)

EDC = 1,2-dichloroethane (ethylene dichloride)

EPA = U.S. Environmental Protection Agency

MTBE = methyl tertiary-butyl ether

MTCA = Washington State Model Toxics Control Act



	unit	WA Method A Cleanup for Groundwater	7/9/2015
			MW02
8270SIM			
Naphthalene	µg/L	160	4.1 ht
Acenaphthene	µg/L		<0.1 ht
Acenaphthylene	µg/L		<0.1 ht
Anthracene	µg/L		<0.1 ht
Benz(a)anthracene	µg/L		<0.1 ht
Benzo(a) pyrene	µg/L	0.1	<0.1 ht
Benzo(b)fluoranthene	µg/L		<0.1 ht
Benzo(g,h,i)perylene	µg/L		<0.1 ht
Benzo(k)fluoranthene	µg/L		<0.1 ht
Chrysene	µg/L		<0.1 ht
Dibenz(a,h)anthracene	µg/L		<0.1 ht
Fluoranthene	µg/L		<0.1 ht
Fluorene	µg/L		<0.1 ht
Indeno(1,2,3-c,d)pyrene	µg/L		<0.1 ht
Phenanthrene	µg/L		<0.1 ht
Pyrene	µg/L		<0.1 ht

Notes

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
 MTCA Method A Cleanup Levels, Table 720-1 of Section 900 of Chapter 173-340 of the
 Washington Administrative Code, revised November 2007.

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

MTCA = Washington State Model Toxics Control Act

Lab Qualifiers

ht - Sample extracted outside holding time. Results should be considered an estimate.

APPENDIX A

Boring Logs

GUIDE TO BOREHOLE LOGS**

MAJOR DIVISIONS		SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS <small>(more than 1/2 of soil >No. 200 sieve size)</small>	GRAVELS <small>more than 50% coarse fraction > no.4 sieve</small>	GW		Well-graded gravels or gravel-sand mixtures, little to no fines.
		GP		Poorly-graded gravels or gravel-sand mixtures, little to no fines.
		GM		Silty gravels, gravel-sand-silt mixtures.
		GC		Clayey gravels or gravel-sand-clay mixtures
	SANDS <small>less than 50% coarse fraction > no.4 sieve</small>	SW		Well-sorted sands or gravelly sands, little to no fines.
		SP		Poorly-sorted sands or gravelly sands, little to no fines.
		SM		Silty sands, sand-silt mixtures.
		SC		Clayey sands, sand-clay mixtures.
FINED GRAINED SOILS <small>(more than 1/2 of soil < No. 200 sieve size)</small>	SILTS & CLAYS <small>Liquid Limit* less than 50%</small>	ML		Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity.
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy or silty clays, lean clays.
		OL		Organic silts and organic silty clays of low plasticity.
	SILTS & CLAYS <small>Liquid Limit* greater than 50%</small>	MH		Inorganic silts, micaceous or diatomaceous fine sand or silty soils, elastic silts.
		CH		Inorganic clays of high plasticity, fat clays.
		OH		Organic clays of medium to high plasticity, organic silty clay, organic silts.
HIGHLY ORGANIC SOILS		Pt		Peat or other highly organic soils.
		Conc		Concrete
		Fill		Fill
		Asph		Asphalt

* Liquid Limit represents the moisture content (in percent) of a soil at which point the soil no longer behaves like a plastic and starts to behave like a liquid.

BORING LOG SYMBOLS

- SAMPLE LOCATION
- SAMPLE INTERVAL
- SAMPLE RECOVERY
- GROUNDWATER, FIRST OBSERVED

- SAMPLE TYPES:
 SS - Split Spoon
 G - Grab
 ST - Shelby Tube
 GS - Geoprobe Sampler

- SHEEN TYPES:
 NS - No Sheen observed
 SS - Slight Sheen observed (Spotty coverage of sheen pan, no iridescence)
 MS - Moderate Sheen (full coverage of sheen pan, no iridescence) pan, iridescent
 HS - Heavy Sheen (full coverage of sheen)

- PERCENTAGES:
 Trace - Particles are present but estimated to be less than 5% Few - 5 to 10%
 Little - 15 to 25%
 Some - 30 to 45%
 Mostly - 50 to 100%

SAMPLE PLASTICITY (FINE-GRAINED SOILS):

- Nonplastic - Cannot be rolled at any moisture content
 Low - Barely rolled, lump cannot be formed when drier than plastic limit
 Medium - Easily rolled, lump crumbles when drier than plastic limit
 High - Easily rolled yet takes considerable time to reach the plastic limit, molded shape can be formed without crumbling when drier than the plastic limit

PARTICLE SIZE RANGE (COARSE-GRAINED SOILS):

- Gravel - Fine, Coarse
 Sand - Fine, Medium, Coarse

SAMPLE MOISTURE:

- Dry - No moisture, dry to touch
 Moist - Damp but no visible moisture
 Wet - Visible free water

**Based on Unified Soil Classification System and ASTM Standard D2487 and D2488



510 Allen Street
Kelso, WA 98626
Phone: 360-703-6079

WELL/BORING NUMBER **HC01**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

CONCRETE 6" thick at ground surface

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

Slight hydrocarbon odor at 10' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.

0
5
10
15
20
25
30



HC01-05
HC01-07
HC01-10
HC01-15

0.2
0.5
0.5
0.5
0.1
0.1
0.2
9.0
1.0
0.6
0.6

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

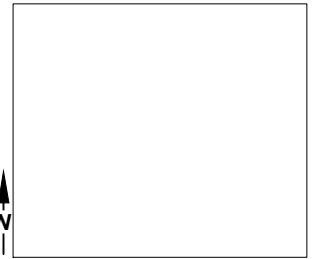


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WELL/BORING NUMBER **HC02**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface

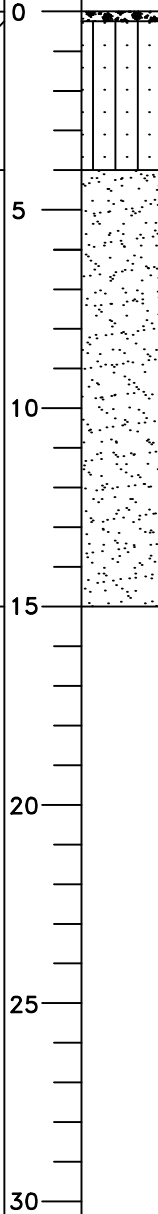
SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet and strong hydrocarbon odor at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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Phone: 360-703-6079

WELL/BORING NUMBER **HC03**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
GRASS AND TOP SOIL	0							WELL CONSTRUCTION Depths (feet bgs) Borehole: 15 Sump: Screen: Casing: Backfill: Sand Pack: Bentonite: 0 - 15 Concrete: Stabilizers:
SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.					0.6			
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.	5			HC03-05	0.6			
Becomes wet at 8' bgs.					0.5			
Strong hydrocarbon odor at 10' bgs.	10			HC03-08	1472			
BOTTOM OF BORING AT 15' B.G.S. Boring backfilled with hydrated bentonite upon completion.	15			HC03-15	18			MATERIALS USED Casing: Well Screen: End Cap: Sand Pack: Bentonite: Concrete: Monument: Well Cap: Other:
	20				26			
	25				10			
	30							

- LEGEND:**
- FILTER PACK
 - BENTONITE
 - CEMENT GROUT
 - CUTTINGS/BACKFILL
 - WATER LEVEL DURING DRILLING
 - WATER LEVEL AFTER DRILLING
 - FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
 DRILLING METHOD: Direct Push
 BOREHOLE DIAMETER: 2.25"
 SAMPLING METHOD: Continuous
 START CARD NUMBER:

CASING ELEVATION:
 GROUND SURFACE ELEVATION:
 COORDINATES:
 COORDINATES:

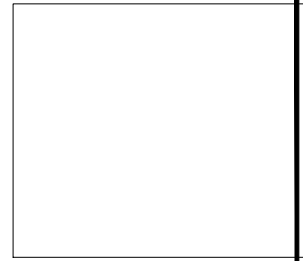


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WELL/BORING NUMBER **HC04**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



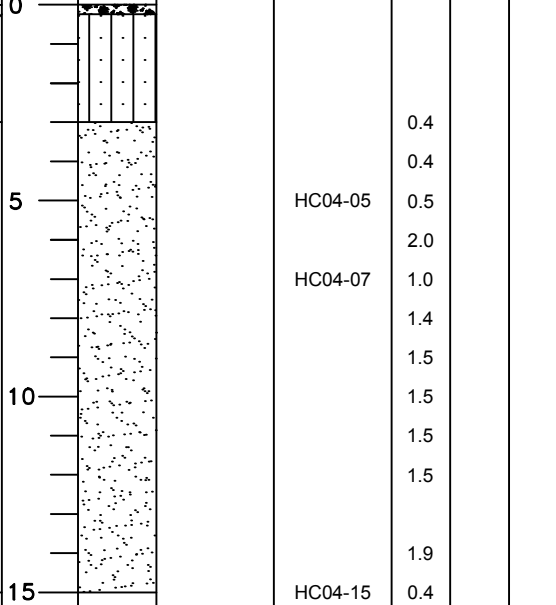
DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface
SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.
Becomes wet at 7' bgs.



BOTTOM OF BORING AT 15' B.G.S.
Boring backfilled with hydrated bentonite upon completion.

WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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Phone: 360-703-6079

WELL/BORING NUMBER **HC05**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface

SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.

0

5

10

15

20

25

30



HC05-05

HC05-07

HC05-15

0.0

0.1

0.0

0.1

1.1

0.8

0.3

0.3

0.2

0.2

0.2

0.2

0.2

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15

Sump:

Screen:

Casing:

Backfill:

Sand Pack:

Bentonite: 0 - 15

Concrete:

Stabilizers:

MATERIALS USED

Casing:

Well Screen:

End Cap:

Sand Pack:

Bentonite:

Concrete:

Monument:

Well Cap:

Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

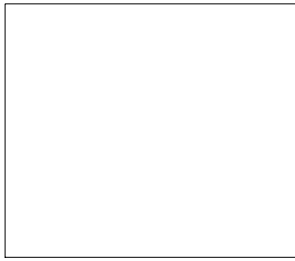


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WELL/BORING NUMBER **HC06**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<p>ASHPALT 3" thick at ground surface</p>	0							<p>WELL CONSTRUCTION Depths (feet bgs)</p> <p>Borehole: 15 Sump: Screen: Casing: Backfill: Sand Pack: Bentonite: 0 - 15 Concrete: Stabilizers:</p> <p>MATERIALS USED</p> <p>Casing: Well Screen: End Cap: Sand Pack: Bentonite: Concrete: Monument: Well Cap: Other:</p> <p>LEGEND:</p> <ul style="list-style-type: none"> <input type="checkbox"/> FILTER PACK <input checked="" type="checkbox"/> BENTONITE <input checked="" type="checkbox"/> CEMENT GROUT <input checked="" type="checkbox"/> CUTTINGS/BACKFILL <input checked="" type="checkbox"/> WATER LEVEL DURING DRILLING <input checked="" type="checkbox"/> WATER LEVEL AFTER DRILLING <input checked="" type="checkbox"/> FINAL WATER LEVEL
<p>SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.</p>	0 - 5			HC06-05	0.2			
<p>SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.</p> <p>Becomes wet at 7' bgs.</p>	5 - 15			HC06-07	0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2			
<p>SILTY SAND (SM), grey, 55% medium to fine sand and 45% low plastic fines, no hydrocarbon odor, wet.</p>	15 - 16			HC06-15	0.2			
<p>SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.</p>	15 - 16			HC06-15	0.2			
<p>BOTTOM OF BORING AT 15' B.G.S.</p> <p>Boring backfilled with hydrated bentonite upon completion.</p>	16 - 30							

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

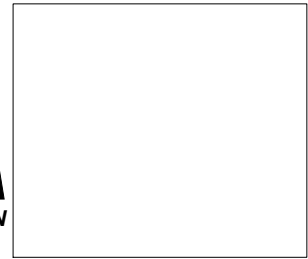


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WELL/BORING NUMBER **HC07**

PROJECT NAME: TOC Kent
 PROJECT NUMBER: 01-323
 PROJECT LOCATION: Kent, WA
 LOGGED BY: R. Honsberger
 REVIEWED BY: C. Hultgren
 DATE: 06-29-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface

SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

SILT (ML), grey, 60% low plastic fines and 40% fine sand, no hydrocarbon odor, wet.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.

0
5
10
15
20
25
30



HC07-05
 HC07-07
 HC07-15

0.4
0.4
0.5
0.4
0.4
0.4
0.4
0.4
0.4
0.4
0.4
0.4

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
 Sump:
 Screen:
 Casing:
 Backfill:
 Sand Pack:
 Bentonite: 0 - 15
 Concrete:
 Stabilizers:

MATERIALS USED

Casing:
 Well Screen:
 End Cap:
 Sand Pack:
 Bentonite:
 Concrete:
 Monument:
 Well Cap:
 Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
 DRILLING METHOD: Direct Push
 BOREHOLE DIAMETER: 2.25"
 SAMPLING METHOD: Continuous
 START CARD NUMBER:

CASING ELEVATION:
 GROUND SURFACE ELEVATION:
 COORDINATES:
 COORDINATES:

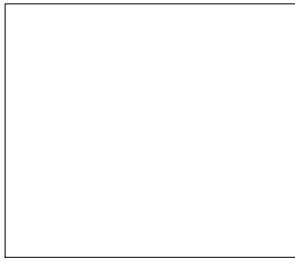


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WELL/BORING NUMBER **HC08**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS		
	0							WELL CONSTRUCTION Depths (feet bgs) Borehole: 15 Sump: Screen: Casing: Backfill: Sand Pack: Bentonite: 0 - 15 Concrete: Stabilizers:		
ASHPALT 3" thick at ground surface SILTY SAND (SM) , brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.	0 to 5			HC08-05	1.7					
SAND (SP) , dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp. Becomes wet at 7' bgs.	5 to 15			HC08-07	0.7 1.8 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.3 0.3					
SILT (ML) , grey, 60% low plastic fines and 40% fine sand, no hydrocarbon odor, wet.	15			HC08-15	0.2					
BOTTOM OF BORING AT 15' B.G.S. Boring backfilled with hydrated bentonite upon completion.	15 to 30									
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> DRILLING CONTRACTOR: ESN DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25" SAMPLING METHOD: Continuous START CARD NUMBER: </td> <td style="width: 50%; vertical-align: top;"> CASING ELEVATION: GROUND SURFACE ELEVATION: COORDINATES: COORDINATES: </td> </tr> </table>									DRILLING CONTRACTOR: ESN DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25" SAMPLING METHOD: Continuous START CARD NUMBER:	CASING ELEVATION: GROUND SURFACE ELEVATION: COORDINATES: COORDINATES:
DRILLING CONTRACTOR: ESN DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25" SAMPLING METHOD: Continuous START CARD NUMBER:	CASING ELEVATION: GROUND SURFACE ELEVATION: COORDINATES: COORDINATES:									

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

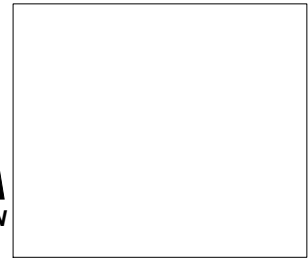


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WELL/BORING NUMBER **HC09**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-29-15

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
<p>ASHPALT 3" thick at ground surface</p> <p>SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.</p> <p>Becomes wet at 7' bgs.</p>	<p>0</p> <p>5</p> <p>10</p> <p>15</p>			<p>HC09-05</p> <p>HC09-10</p> <p>HC09-15</p>	<p>0.2</p> <p>0.3</p> <p>0.3</p> <p>0.3</p> <p>0.3</p> <p>0.4</p> <p>0.4</p> <p>0.4</p> <p>0.4</p> <p>0.4</p> <p>0.4</p>			<p>WELL CONSTRUCTION Depths (feet bgs)</p> <p>Borehole: 15 Sump: Screen: Casing: Backfill: Sand Pack: Bentonite: 0 - 15 Concrete: Stabilizers:</p> <p>MATERIALS USED</p> <p>Casing: Well Screen: End Cap: Sand Pack: Bentonite: Concrete: Monument: Well Cap: Other:</p> <p>LEGEND:</p> <p><input type="checkbox"/> FILTER PACK</p> <p><input checked="" type="checkbox"/> BENTONITE</p> <p><input checked="" type="checkbox"/> CEMENT GROUT</p> <p><input checked="" type="checkbox"/> CUTTINGS/BACKFILL</p> <p><input checked="" type="checkbox"/> WATER LEVEL DURING DRILLING</p> <p><input checked="" type="checkbox"/> WATER LEVEL AFTER DRILLING</p> <p><input checked="" type="checkbox"/> FINAL WATER LEVEL</p>
<p>BOTTOM OF BORING AT 15' B.G.S.</p> <p>Boring backfilled with hydrated bentonite upon completion.</p>	<p>20</p> <p>25</p> <p>30</p>							

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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Phone: 360-703-6079

WELL/BORING NUMBER **HC10**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-07-15

LOCATION MAP



DESCRIPTION <small>(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)</small>	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
GRASS AND TOP SOIL	0							<p>WELL CONSTRUCTION Depths (feet bgs)</p> <p>Borehole: 15 Sump: Screen: Casing: Backfill: Sand Pack: Bentonite: 0 - 15 Concrete: Stabilizers:</p> <p>MATERIALS USED</p> <p>Casing: Well Screen: End Cap: Sand Pack: Bentonite: Concrete: Monument: Well Cap: Other:</p> <p>LEGEND:</p> <ul style="list-style-type: none"> FILTER PACK BENTONITE CEMENT GROUT CUTTINGS/BACKFILL WATER LEVEL DURING DRILLING WATER LEVEL AFTER DRILLING FINAL WATER LEVEL
<p>SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.</p> <p>Becomes wet at 7' bgs. Strong hydrocarbon odor 7' to 9' bgs.</p>	5			HC10-05 HC10-07	0.0 0.0 0.0 0.0		394	
<p>BOTTOM OF BORING AT 15' B.G.S.</p> <p>Boring backfilled with hydrated bentonite upon completion.</p>	15			HC10-15	1.5			
<p>DRILLING CONTRACTOR: ESN DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25" SAMPLING METHOD: Continuous START CARD NUMBER:</p>				<p>CASING ELEVATION: GROUND SURFACE ELEVATION: COORDINATES: COORDINATES:</p>				



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Phone: 360-703-6079

WELL/BORING NUMBER **HC11**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

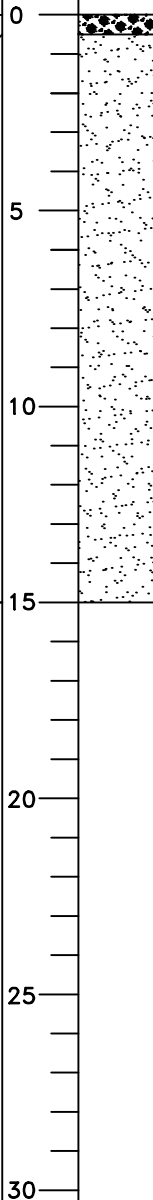
ASHPALT 6" thick at ground surface

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, strong hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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Phone: 360-703-6079

WELL/BORING NUMBER **HC12**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

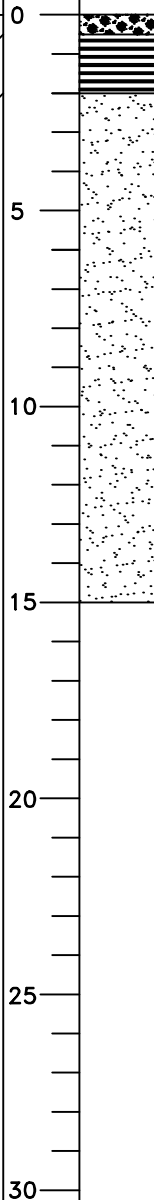
GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, strong hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

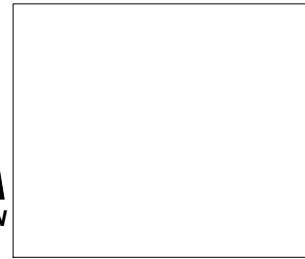


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WELL/BORING NUMBER **HC13**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

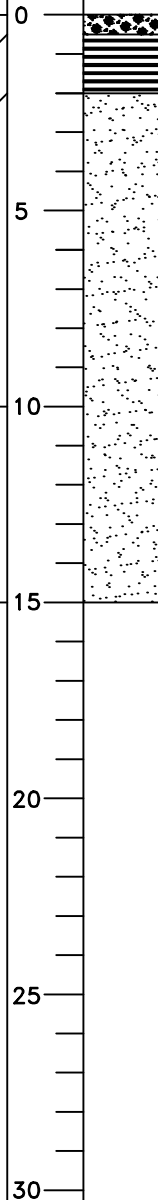
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, strong hydrocarbon odor, damp.

No recovery 5' to 10' bgs. Wood plug in sampler.
Becomes wet at 7' bgs.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, wood waste, strong hydrocarbon odor at 11' bgs, wet.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

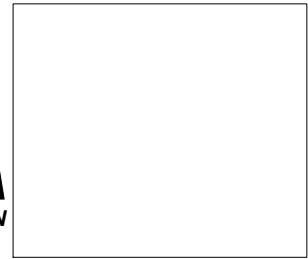


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WELL/BORING NUMBER **HC14**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

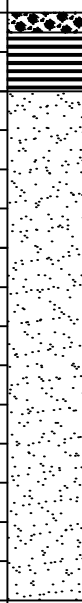
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.

0
5
10
15
20
25
30



HC14-05
HC14-07
HC14-15

0.5
0.5
0.6
0.5
0.5
0.2
0.1
0.2
0.1
0.1
0.1
0.1
0.1

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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WELL/BORING NUMBER **HC15**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

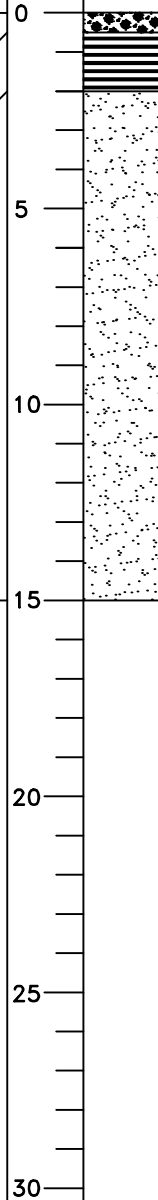
GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, strong hydrocarbon odor from 3' to 5' bgs, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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WELL/BORING NUMBER **HC16**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-21-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, strong hydrocarbon odor from 3' to 5' bgs, damp.

Becomes wet at 7' bgs.

Wood waste at 14' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.

0
5
10
15
20
25
30



HC16-05
HC16-07
HC16-15

42
117
14
1.0
0.5
0.5
0.4
0.1
0.1
0.1

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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WELL/BORING NUMBER **HC17**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 07-22-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 6" thick at ground surface

GRAVEL FILL (GP), brown, 70% fine subangular up to 5/8" gravel and 30% medium to fine sand, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, moderate hydrocarbon odor from 3' to 5' bgs, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

Boring backfilled with hydrated bentonite upon completion.



WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15
Sump:
Screen:
Casing:
Backfill:
Sand Pack:
Bentonite: 0 - 15
Concrete:
Stabilizers:

MATERIALS USED

Casing:
Well Screen:
End Cap:
Sand Pack:
Bentonite:
Concrete:
Monument:
Well Cap:
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 2.25"
SAMPLING METHOD: Continuous
START CARD NUMBER:

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

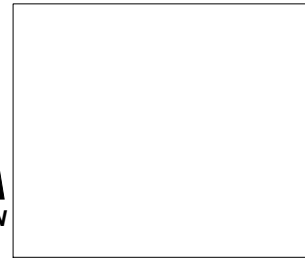


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WELL/BORING NUMBER **MW01**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

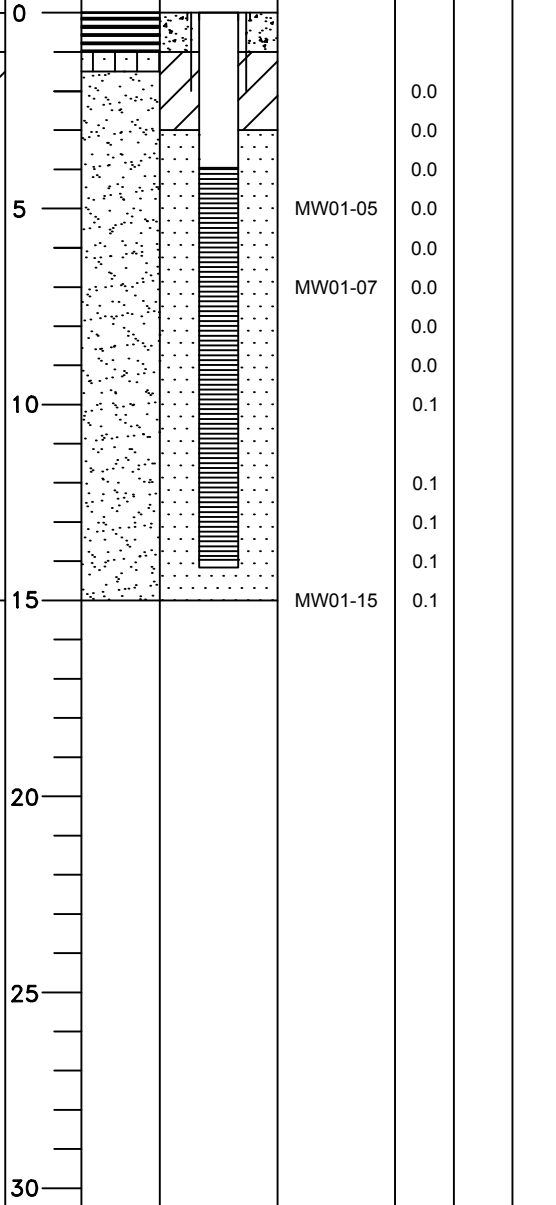
BOREHOLE/WELL CONSTRUCTION DETAILS

GRASS AND TOP SOIL

SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.



BOTTOM OF BORING AT 15' B.G.S.

WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.96 - 14.16
Screen: 3.96 - 13.96
Casing: 0 - 3.96
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC851

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

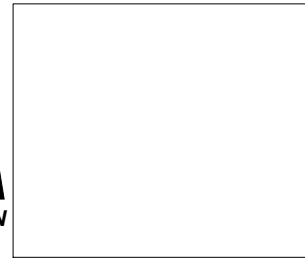


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WELL/BORING NUMBER **MW02**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

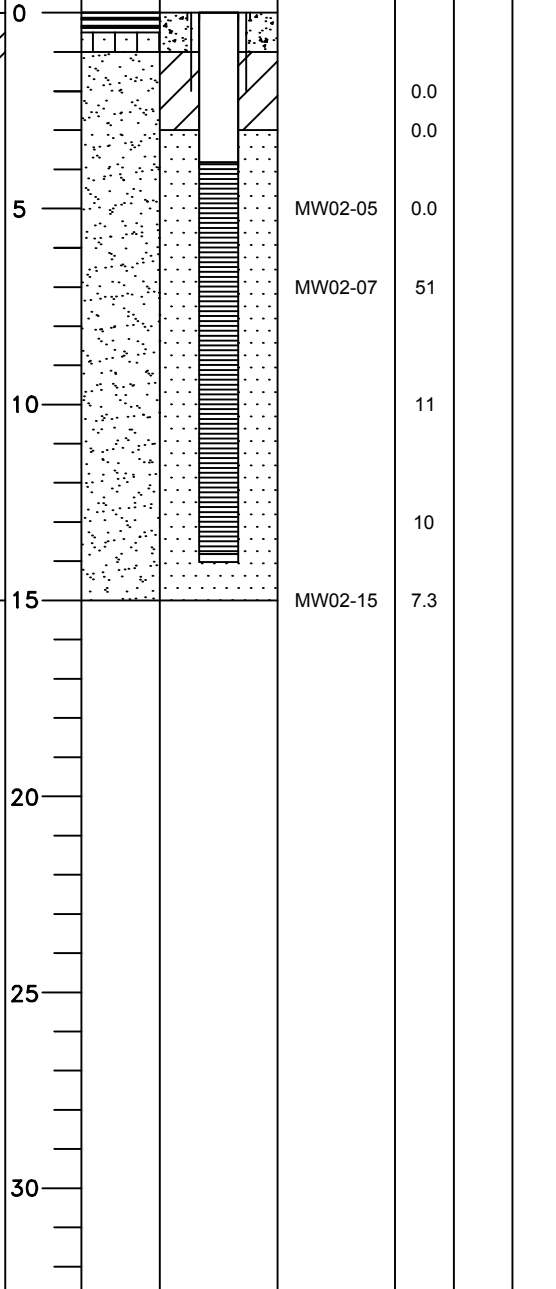
GRASS AND TOP SOIL

SILTY SAND (SM), brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet with moderate hydrocarbon odor at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.



WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.82 - 14.02
Screen: 3.82 - 13.82
Casing: 0 - 3.82
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC852

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

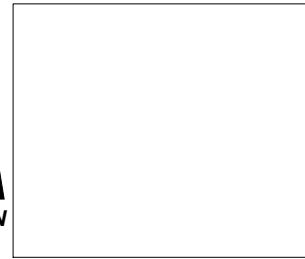


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WELL/BORING NUMBER **MW03**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.) SYMBOL WELL DETAILS SAMPLE ID PID FIRST WATER BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

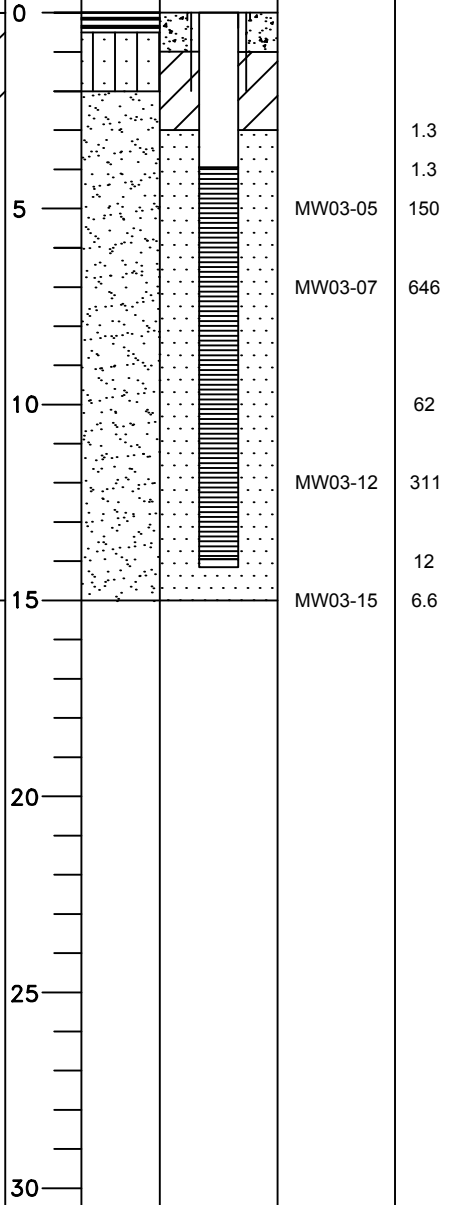
GRASS AND TOP SOIL

SILTY SAND (SM), dark brown, 70% medium to fine sand and 30% low plastic fines, no hydrocarbon odor, damp.

SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Strong hydrocarbon odor at 5' to 12' bgs.

Becomes wet at 7' bgs.



BOTTOM OF BORING AT 15' B.G.S.

WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.95 - 14.15
Screen: 3.95 - 13.95
Casing: 0 - 3.95
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC853

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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WELL/BORING NUMBER **MW04**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

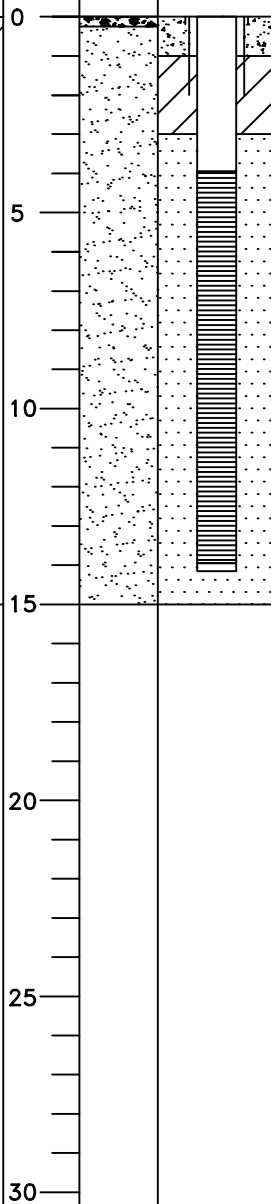
BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.



WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.94 - 14.14
Screen: 3.94 - 13.94
Casing: 0 - 3.94
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC854

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:



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Phone: 360-703-6079

WELL/BORING NUMBER **MW05**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)

SYMBOL

WELL DETAILS

SAMPLE ID

PID

FIRST WATER

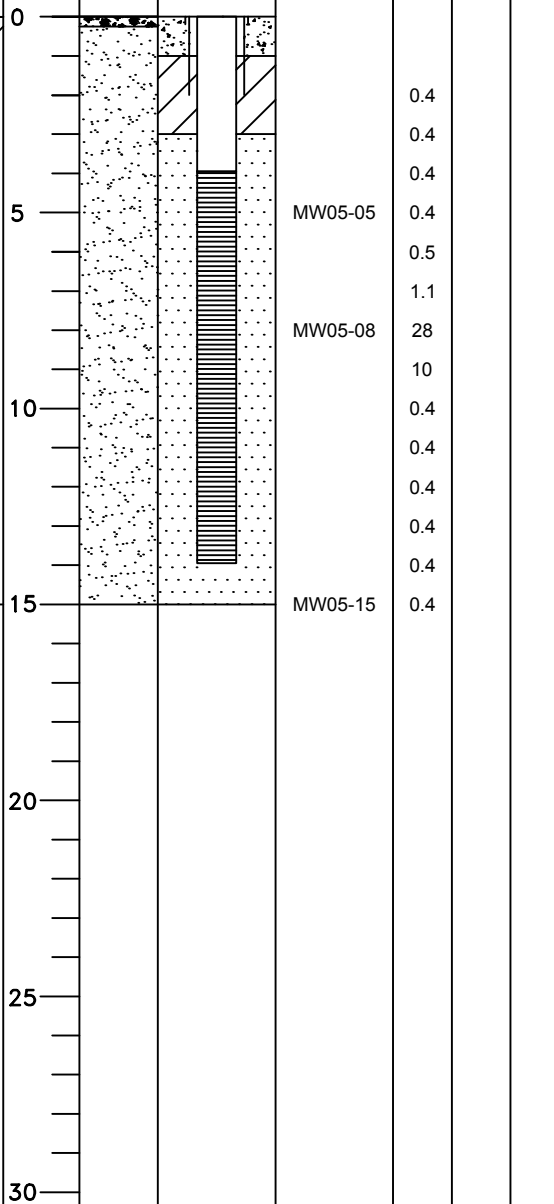
BLOW COUNTS

BOREHOLE/WELL CONSTRUCTION DETAILS

ASHPALT 3" thick at ground surface
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet with slight hydrocarbon odor at 8' bgs.

BOTTOM OF BORING AT 15' B.G.S.



WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.90 - 14.10
Screen: 3.90 - 13.90
Casing: 0 - 3.90
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC855

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

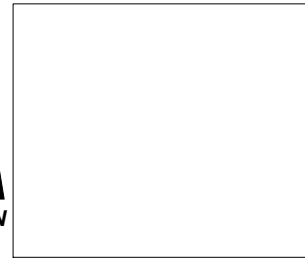


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Kelso, WA 98626
Phone: 360-703-6079

WELL/BORING NUMBER **MW06**

PROJECT NAME: TOC Kent
PROJECT NUMBER: 01-323
PROJECT LOCATION: Kent, WA
LOGGED BY: R. Honsberger
REVIEWED BY: C. Hultgren
DATE: 06-30-15

LOCATION MAP



DESCRIPTION

(USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)

DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS
0						
0.1						
0.1						
0.2						
0.2			MW06-05			
0.3						
0.5			MW06-07			
0.3						
0.3						
0.3						
0.3						
0.3						
0.3						
0.3						
0.3						
0.3						
0.3						
15			MW06-15			
20						
25						
30						

WELL CONSTRUCTION

Depths (feet bgs)
Borehole: 15
Sump: 13.90 - 14.10
Screen: 3.90 - 13.90
Casing: 0 - 3.90
Backfill:
Sand Pack: 3 - 15
Bentonite: 1 - 3
Concrete: 0 - 1
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: Prepack
End Cap: Sump
Sand Pack: 2 50lbs bag
Bentonite: 1 60lbs bag
Concrete: 1 60lbs bag
Monument: Flush
Well Cap: Locking J-plug
Other:

LEGEND:

- FILTER PACK
- BENTONITE
- CEMENT GROUT
- CUTTINGS/BACKFILL
- WATER LEVEL DURING DRILLING
- WATER LEVEL AFTER DRILLING
- FINAL WATER LEVEL

ASHPALT 3" thick at ground surface
SAND (SP), dark brown, 95% medium to fine sand and 5% low plastic fines, no hydrocarbon odor, damp.

Becomes wet at 7' bgs.

BOTTOM OF BORING AT 15' B.G.S.

DRILLING CONTRACTOR: ESN
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 4"
SAMPLING METHOD: Continuous
START CARD NUMBER: BJC856

CASING ELEVATION:
GROUND SURFACE ELEVATION:
COORDINATES:
COORDINATES:

APPENDIX B
Laboratory Report and 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

July 7, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on June 29, 2015 from the TOC_01-323, WORFDB8 F&BI 506541 project. There are 44 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: Rob Honsberger, Allison Greiner
HDC0707R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 29, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 506541 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
506541 -01	HC01-05
506541 -02	HC01-07
506541 -03	HC01-10
506541 -04	HC01-15
506541 -05	HC02-05
506541 -06	HC02-07
506541 -07	HC02-15
506541 -08	HC03-05
506541 -09	HC03-08
506541 -10	HC03-15
506541 -11	HC04-05
506541 -12	HC04-07
506541 -13	HC04-15
506541 -14	HC05-05
506541 -15	HC05-07
506541 -16	HC05-15
506541 -17	HC06-05
506541 -18	HC06-07
506541 -19	HC06-15
506541 -20	HC07-05
506541 -21	HC07-07
506541 -22	HC07-15
506541 -23	HC08-05
506541 -24	HC08-07
506541 -25	HC08-15
506541 -26	HC09-05
506541 -27	HC09-07
506541 -28	HC09-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
Date Received: 06/29/15
Project: TOC_01-323, WORFDB8 F&BI 506541
Date Extracted: 06/30/15
Date Analyzed: 06/30/15 and 07/01/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HC01-05 506541-01	<2	102
HC01-07 506541-02	<2	102
HC01-10 506541-03	3.0	91
HC01-15 506541-04	<2	109
HC02-05 506541-05	8.2	109
HC02-07 506541-06 1/10	560	122
HC02-15 506541-07	3.9	92
HC03-05 506541-08	<2	108
HC03-08 506541-09 1/20	1,100	143
HC03-15 506541-10	3.6	114
HC04-05 506541-11	<2	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
Date Received: 06/29/15
Project: TOC_01-323, WORFDB8 F&BI 506541
Date Extracted: 06/30/15
Date Analyzed: 06/30/15 and 07/01/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
HC04-07 506541-12	<2	88
HC04-15 506541-13	<2	107
HC05-05 506541-14	<2	109
HC05-07 506541-15	<2	109
HC05-15 506541-16	<2	109
HC06-05 506541-17	<2	108
HC06-07 506541-18	<2	110
HC06-15 506541-19	<2	109
HC07-05 506541-20	<2	108
HC07-07 506541-21	<2	109

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
Date Received: 06/29/15
Project: TOC_01-323, WORFDB8 F&BI 506541
Date Extracted: 06/30/15
Date Analyzed: 06/30/15 and 07/01/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
HC07-15 506541-22	<2	108
HC08-05 506541-23	<2	110
HC08-07 506541-24	<2	92
HC08-15 506541-25	<2	108
HC09-05 506541-26	<2	88
HC09-07 506541-27	<2	108
HC09-15 506541-28	<2	108
Method Blank 05-1190 MB2	<2	106
Method Blank 05-1193 MB	<2	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
 Date Received: 06/29/15
 Project: TOC_01-323, WORFDB8 F&BI 506541
 Date Extracted: 06/30/15
 Date Analyzed: 06/30/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HC01-05 506541-01	<50	<250	127
HC01-07 506541-02	<50	<250	129
HC01-10 506541-03	<50	<250	117
HC01-15 506541-04	<50	<250	128
HC02-05 506541-05	<50	<250	130
HC02-07 506541-06	400 x	<250	118
HC02-15 506541-07	<50	<250	128
HC03-05 506541-08	<50	<250	120
HC03-08 506541-09	1,200 x	<250	129
HC03-15 506541-10	<50	<250	130
HC04-05 506541-11	<50	<250	121
HC04-07 506541-12	<50	<250	130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
 Date Received: 06/29/15
 Project: TOC_01-323, WORFDB8 F&BI 506541
 Date Extracted: 06/30/15
 Date Analyzed: 06/30/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HC04-15 506541-13	<50	<250	134
HC05-05 506541-14	<50	<250	121
HC05-07 506541-15	<50	<250	126
HC05-15 506541-16	<50	<250	131
HC06-05 506541-17	<50	<250	128
HC06-07 506541-18	<50	<250	127
HC06-15 506541-19	<50	<250	103
HC07-05 506541-20	<50	<250	124
HC07-07 506541-21	<50	<250	136
HC07-15 506541-22	<50	<250	113
HC08-05 506541-23	250 x	2,800	113
HC08-07 506541-24	69 x	760	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15
Date Received: 06/29/15
Project: TOC_01-323, WORFDB8 F&BI 506541
Date Extracted: 06/30/15
Date Analyzed: 06/30/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HC08-15 506541-25	<50	<250	116
HC09-05 506541-26	<50	<250	113
HC09-07 506541-27	<50	<250	123
HC09-15 506541-28	<50	<250	126
Method Blank 05-1301 MB	<50	<250	120
Method Blank 05-1304 MB	<50	<250	135

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC01-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-01
Date Analyzed:	06/29/15	Data File:	062923.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC01-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-02
Date Analyzed:	06/29/15	Data File:	062924.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	62	142
Toluene-d8	77	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC01-10	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-03
Date Analyzed:	06/29/15	Data File:	062925.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC01-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-04
Date Analyzed:	06/29/15	Data File:	062926.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC02-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-05
Date Analyzed:	06/29/15	Data File:	062927.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC02-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-06
Date Analyzed:	06/30/15	Data File:	062941.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC02-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-07
Date Analyzed:	06/29/15	Data File:	062928.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC03-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-08
Date Analyzed:	06/29/15	Data File:	062929.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC03-08	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-09
Date Analyzed:	07/01/15	Data File:	070105.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	112	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	1.9
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC03-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-10
Date Analyzed:	06/29/15	Data File:	062930.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC04-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-11
Date Analyzed:	06/29/15	Data File:	062931.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC04-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-12
Date Analyzed:	06/30/15	Data File:	062932.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC04-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-13
Date Analyzed:	06/30/15	Data File:	062933.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC05-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-14
Date Analyzed:	06/30/15	Data File:	062934.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC05-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-15
Date Analyzed:	06/30/15	Data File:	062935.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	0.17
o-Xylene	0.071

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC05-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-16
Date Analyzed:	06/30/15	Data File:	062936.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC06-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-17
Date Analyzed:	06/30/15	Data File:	062937.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC06-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-18
Date Analyzed:	06/30/15	Data File:	062938.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.069
m,p-Xylene	0.33
o-Xylene	0.14

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC06-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-19
Date Analyzed:	06/30/15	Data File:	062939.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC07-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	506541-20
Date Analyzed:	06/30/15	Data File:	062940.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC07-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-21
Date Analyzed:	06/30/15	Data File:	063020.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	89	113
Toluene-d8	98	64	137
4-Bromofluorobenzene	101	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	0.13
o-Xylene	0.060

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC07-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-22
Date Analyzed:	06/30/15	Data File:	063021.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC08-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-23
Date Analyzed:	06/30/15	Data File:	063022.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC08-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-24
Date Analyzed:	06/30/15	Data File:	063023.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	0.15
o-Xylene	0.072

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC08-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-25
Date Analyzed:	06/30/15	Data File:	063024.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC09-05	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-26
Date Analyzed:	06/30/15	Data File:	063025.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	89	113
Toluene-d8	98	64	137
4-Bromofluorobenzene	101	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC09-07	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-27
Date Analyzed:	06/30/15	Data File:	063026.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC09-15	Client:	HydroCon
Date Received:	06/29/15	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	506541-28
Date Analyzed:	06/30/15	Data File:	063027.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/29/15	Lab ID:	05-1167 mb
Date Analyzed:	06/29/15	Data File:	062922.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 506541
Date Extracted:	06/30/15	Lab ID:	05-1168 mb
Date Analyzed:	06/30/15	Data File:	063014.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506517-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506558-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506541-01 (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	109	104	63-146	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	108	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506541-21 (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	121	119	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	107	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506541-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	82	83	29-129	1
Toluene	mg/kg (ppm)	2.5	<0.05	79	81	35-130	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	78	81	32-137	4
m,p-Xylene	mg/kg (ppm)	5	<0.1	79	80	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	78	80	33-134	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	95	68-114
Toluene	mg/kg (ppm)	2.5	92	66-126
Ethylbenzene	mg/kg (ppm)	2.5	91	64-123
m,p-Xylene	mg/kg (ppm)	5	90	78-122
o-Xylene	mg/kg (ppm)	2.5	89	77-124

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/07/15

Date Received: 06/29/15

Project: TOC_01-323, WORFDB8 F&BI 506541

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

Laboratory Code: 506541-21 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	57	57	26-114	0
Toluene	mg/kg (ppm)	2.5	<0.05	58	58	34-112	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	61	61	34-115	0
m,p-Xylene	mg/kg (ppm)	5	0.10	61	63	25-125	3
o-Xylene	mg/kg (ppm)	2.5	0.046	66	67	27-126	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	89	72-106
Toluene	mg/kg (ppm)	2.5	89	74-111
Ethylbenzene	mg/kg (ppm)	2.5	93	75-112
m,p-Xylene	mg/kg (ppm)	5	98	77-115
o-Xylene	mg/kg (ppm)	2.5	103	76-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

506541

SAMPLE CHAIN OF CUSTODY

ME 06/29/15 152/004

Send Report To Credis Helgen

Company Hydram

Address 510 Allen St S.E.

City, State, ZIP Kobe WA 98020

Phone # 360-703-6089 Fax # 260-703-6088

SAMPLERS (signature) [Signature]

PROJECT NAME/NO. Tac 04-223

PO#

REMARKS

SAMPLERS (signature)	
PROJECT NAME/NO.	PO#
REMARKS	

Page # 1 of 3

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	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTX		
H01-05	01A	6-24-15	0900	S-1	5	X	X							
H01-07 H01-07	02		0905		1	T	X							
H01-10	03		0910		1	T	X							
H01-15	04		0915		1	T	X							
H02-05	05		0920		1	X	X							
H02-07	06		0925		1	X	X							
H02-15	07		0930		1	X	X							
H03-05	08		0935		1	X	X							
H03-08	09		0940		1	X	X							
H03-15	10		0945		1	X	X							

Friedman & Bryna, 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: <u>[Signature]</u>	<u>[Signature]</u>	Robert A. Helgen	Hydram	6-24-15	1410	
Received by: <u>[Signature]</u>	<u>[Signature]</u>	Eric Helgen	Hydram	6-24-15	1410	
Relinquished by:						
Received by:						

Samples received at 10:00

506541

SAMPLE CHAIN OF CUSTODY

06/29/15

USA / COY

Send Report To

Company

Address

City, State, ZIP

Phone #

See Report

SAMPLERS (signature)

PROJECT NAME/NO.

Tk 21323

PO#

REMARKS

Blank remarks box

Page # 2 of 3

TURNAROUND TIME
Standard (2 Weeks)
RUSH

Rush charges authorized by

SAMPLE DISPOSAL

- Standard (2 Weeks)
- RUSH
- Dispose after 30 days
- Return samples
- Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	0928 2015		
HC04-05	11E	6-24-15	0950	So. 1	5	X	X					X		
HC04-07	12		0955			X	X					X		
HC04-05	13		1005			X	X					X		
HC05-05	14		1005			X	X					X		
HC05-07	15		1010			X	X					X		
HC05-15	16		1015			X	X					X		
HC06-05	17		1020			X	X					X		
HC06-07	18		1025			X	X					X		
HC06-15	19		1030			X	X					X		
HC07-05	20		1035			X	X					X		

Friedman & Bryva, 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:	<i>[Signature]</i>	Ant A. Hudson	Hudson	6-25-15	1410		
Received by:	<i>[Signature]</i>	See down	F&B	6-25-15	1410		
Relinquished by:							
Received by:							

Samples received at

9

0

506541

SAMPLE CHAIN OF CUSTODY

ME 06/29/15 3 of 3 us2/co4

Send Report To Mr. See list

Company _____

Address _____

City, State, ZIP _____

Phone # _____ Fax # _____

SAMPLERS (signature) <u>[Signature]</u>	
PROJECT NAME/NO.	PO#
<u>Toe 01-323</u>	
REMARKS	

<input checked="" type="checkbox"/> Standard (2 Weeks) <input type="checkbox"/> RUSH Rush charges authorized by _____	TURNAROUND TIME <input checked="" type="checkbox"/> Standard (2 Weeks) <input type="checkbox"/> RUSH
SAMPLE DISPOSAL <input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Return samples <input type="checkbox"/> Will call with instructions	

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED					Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270		HFS
H07-07	21/E	6-24-15	1040	Soil	5	X	X				X	
H07-15	22/		1045			X	Y				Y	
H08-05	23/		1050			X	X				X	
H08-07	24/		1055			X	Y				X	
H08-15	25/		1100			X	Y				X	
H09-05	26/		1105			X	Y				X	
H09-07	27/		1110			X	X				X	
H09-15	28/		1115			X	X				Y	

Friedman & Bryna, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
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SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>	<u>[Signature]</u>	<u>Art A. Hansen</u>	<u>[Signature]</u>	<u>Hyschem</u>	<u>[Signature]</u>	6-29-15	1510
<u>[Signature]</u>	<u>[Signature]</u>	<u>Beilhorn</u>	<u>[Signature]</u>	<u>FEI B</u>	<u>[Signature]</u>	6/20	1410
Received by:						Samples received at	6/20

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

July 9, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on June 30, 2015 from the TOC_01-323, WORFDB8 F&BI 506569 project. There are 30 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: Rob Honsberger, Allison Greiner
HDC0709R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 506569 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
506569 -01	MW04-05
506569 -02	MW04-07
506569 -03	MW04-15
506569 -04	MW05-05
506569 -05	MW05-08
506569 -06	MW05-15
506569 -07	MW06-05
506569 -08	MW06-06
506569 -09	MW06-15
506569 -10	MW01-05
506569 -11	MW01-07
506569 -12	MW01-15
506569 -13	MW02-05
506569 -14	MW02-07
506569 -15	MW02-15
506569 -16	MW03-05
506569 -17	MW03-07
506569 -18	MW03-12
506569 -19	MW03-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

Date Extracted: 06/30/15 and 07/07/15

Date Analyzed: 07/01/15 and 07/07/15

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
MW04-05 506569-01	<2	108
MW04-07 506569-02	<2	107
MW04-15 506569-03	<2	107
MW05-05 506569-04	<2	86
MW05-08 506569-05	18	108
MW05-15 506569-06	<2	107
MW06-05 506569-07	<2	108
MW06-06 506569-08	<2	107
MW06-15 506569-09	<2	106
MW01-05 506569-10	<2	107
MW01-07 506569-11	<2	106
MW01-15 506569-12	<2	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15
 Date Received: 06/30/15
 Project: TOC_01-323, WORFDB8 F&BI 506569
 Date Extracted: 06/30/15 and 07/07/15
 Date Analyzed: 07/01/15 and 07/07/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
MW02-05 506569-13	<2	113
MW02-07 506569-14 1/20	630	113
MW02-15 506569-15	<2	110
MW03-05 506569-16 1/20	1,200	ip
MW03-07 506569-17 1/20	5,100	ip
MW03-12 506569-18 1/5	380	139
MW03-15 506569-19	<2	107
Method Blank 05-1195 MB	<2	108
Method Blank 05-1195 MB2	<2	112

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15
 Date Received: 06/30/15
 Project: TOC_01-323, WORFDB8 F&BI 506569
 Date Extracted: 07/01/15
 Date Analyzed: 07/01/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 48-168)
MW04-05 506569-01	<50	<250	101
MW04-07 506569-02	85 x	1,100	98
MW04-15 506569-03	<50	<250	100
MW05-05 506569-04	<50	<250	93
MW05-08 506569-05	350	<250	95
MW05-15 506569-06	<50	<250	90
MW06-05 506569-07	<50	<250	88
MW06-06 506569-08	<50	<250	87
MW06-15 506569-09	<50	<250	92
MW01-05 506569-10	<50	<250	74
MW01-07 506569-11	<50	<250	54

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15
 Date Received: 06/30/15
 Project: TOC_01-323, WORFDB8 F&BI 506569
 Date Extracted: 07/01/15
 Date Analyzed: 07/01/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
MW01-15 506569-12	<50	<250	68
MW02-05 506569-13	<50	<250	70
MW02-07 506569-14	400 x	<250	65
MW02-15 506569-15	<50	<250	72
MW03-05 506569-16	1,500 x	<250	75
MW03-07 506569-17	330 x	<250	78
MW03-12 506569-18	640 x	<250	77
MW03-15 506569-19	<50	<250	73
Method Blank 05-1309 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-01
Date Analyzed:	07/01/15	Data File:	063035.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04-07	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-02
Date Analyzed:	07/01/15	Data File:	063036.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-03
Date Analyzed:	07/01/15	Data File:	063037.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-04
Date Analyzed:	07/01/15	Data File:	063038.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05-08	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-05
Date Analyzed:	07/01/15	Data File:	063039.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-06
Date Analyzed:	07/01/15	Data File:	063040.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW06-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-07
Date Analyzed:	07/01/15	Data File:	063041.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	97	64	137
4-Bromofluorobenzene	101	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW06-06	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-08
Date Analyzed:	07/01/15	Data File:	070105.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW06-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-09
Date Analyzed:	07/01/15	Data File:	070106.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	97	64	137
4-Bromofluorobenzene	99	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-10
Date Analyzed:	07/01/15	Data File:	070107.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01-07	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-11
Date Analyzed:	07/01/15	Data File:	070108.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	101	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-12
Date Analyzed:	07/01/15	Data File:	070109.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	89	113
Toluene-d8	98	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-13
Date Analyzed:	07/02/15	Data File:	070148.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02-07	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-14
Date Analyzed:	07/01/15	Data File:	070111.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	103	64	137
4-Bromofluorobenzene	98	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	1.0
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-15
Date Analyzed:	07/01/15	Data File:	070112.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-05	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-16
Date Analyzed:	07/02/15	Data File:	070149.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	89	113
Toluene-d8	109	64	137
4-Bromofluorobenzene	93	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.22
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-07	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-17
Date Analyzed:	07/02/15	Data File:	070150.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	109	64	137
4-Bromofluorobenzene	106	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.53
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-12	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-18
Date Analyzed:	07/01/15	Data File:	070115.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	101	64	137
4-Bromofluorobenzene	105	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.19
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-15	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-19
Date Analyzed:	07/01/15	Data File:	070116.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	05-1169 mb
Date Analyzed:	07/01/15	Data File:	063033.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

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

Laboratory Code: 506569-02 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

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

Laboratory Code: 506569-01 (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	108	114	73-135	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	105	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

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

Laboratory Code: 506569-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	85	81	26-114	5
Toluene	mg/kg (ppm)	2.5	<0.05	85	82	34-112	4
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	89	84	34-115	6
m,p-Xylene	mg/kg (ppm)	5	<0.1	93	88	25-125	6
o-Xylene	mg/kg (ppm)	2.5	<0.05	98	93	27-126	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/09/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	90	72-106
Toluene	mg/kg (ppm)	2.5	90	74-111
Ethylbenzene	mg/kg (ppm)	2.5	94	75-112
m,p-Xylene	mg/kg (ppm)	5	99	77-115
o-Xylene	mg/kg (ppm)	2.5	103	76-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

SAMPLE CHAIN OF CUSTODY ME 06-80-15

506569

Page # 104 of 182

Send Report To Craig Hultgren

Company Hughes

Address 510 Allen St Sct B

City, State, ZIP Klsd WA 98626

Phone # 360-705-6779 Fax # 360-705-6068

SAMPLERS (signature) <u>[Signature]</u>		PO#
PROJECT NAME/NO. <u>Tr 01-323</u>		
REMARKS		

<input checked="" type="checkbox"/> Standard (2 Weeks) <input type="checkbox"/> RUSH Rush charges authorized by _____	SAMPLE DISPOSAL <input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Return samples <input type="checkbox"/> Will call with instructions
---	--

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS				
Mw01-05	01	6-30-15	0920	S-1	5	X	X								
Mw04-07	02		0925			Y	Y								
Mw04-15	03		0930			Y	Y								
Mw05-05	04		1005			Y	X								
Mw05-08	05		1010			Y	Y								
Mw05-15	06		1015			X	X								
Mw05-05	07		11:10			X	Y								
Mw06-06	08		11:15			X	X								sample label Mw06-07
Mw06-15	09		11:20			X	X								

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>Walt A. Henderson</u>		<u>Hughes</u>		<u>6-30-15</u>	<u>1405</u>
Received by: <u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>6/25/15</u>	<u>1905</u>
Relinquished by:		Received by:		Samples received at			

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

506569

SAMPLE CHAIN OF CUSTODY

HE 06-30-15

204 / 102

Send Report To _____

Company See Page 1

Address _____

City, State, ZIP _____

Phone # _____ Fax # _____

SAMPLERS (signature) [Signature]

PROJECT NAME/NO. Tool 01-323

PO#

REMARKS

REMARKS section with signature and project details.

SAMPLE DISPOSAL section with checkboxes for Standard, RUSH, Return samples, and Will call with instructions.

ANALYSES REQUESTED

Main data table with columns: Sample ID, Lab ID, Date Sampled, Time Sampled, Sample Type, # of containers, TPH-Diesel, TPH-Gasoline, BTEX by 8021B, VOCs by 8260, SVOCs by 8270, HFS, Notes.

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: [Signature]

Relinquished by: Robert A. Hirsberger

Relinquished by: [Signature]

Relinquished by: 6-30-15

Relinquished by: 1405

Received by: _____

Received by: [Signature]

Received by: _____

Received by: 5

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 23, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on June 30, 2015 from the TOC_01-323, WORFDB8 F&BI 506569 project. There are 5 pages included in this report.

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: Rob Honsberger, Allison Greiner
HDC0923R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 506569 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
506569 -01	MW04-05
506569 -02	MW04-07
506569 -03	MW04-15
506569 -04	MW05-05
506569 -05	MW05-08
506569 -06	MW05-15
506569 -07	MW06-05
506569 -08	MW06-06
506569 -09	MW06-15
506569 -10	MW01-05
506569 -11	MW01-07
506569 -12	MW01-15
506569 -13	MW02-05
506569 -14	MW02-07
506569 -15	MW02-15
506569 -16	MW03-05
506569 -17	MW03-07
506569 -18	MW03-12
506569 -19	MW03-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-07	Client:	HydroCon
Date Received:	06/30/15	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	506569-17
Date Analyzed:	07/02/15	Data File:	070150.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	109	64	137
4-Bromofluorobenzene	106	81	119

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	0.69

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 506569
Date Extracted:	06/30/15	Lab ID:	05-1169 mb
Date Analyzed:	07/01/15	Data File:	063033.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	100	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/23/15

Date Received: 06/30/15

Project: TOC_01-323, WORFDB8 F&BI 506569

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

Laboratory Code: 506569-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Hexane	mg/kg (ppm)	2.5	<0.25	68	65	10-95	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	91	88	17-134	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	83	78	22-124	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	89	82	32-126	8
Naphthalene	mg/kg (ppm)	2.5	<0.05	94	89	24-139	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Hexane	mg/kg (ppm)	2.5	88	55-107
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	93	72-122
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	88	73-111
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	95	77-117
Naphthalene	mg/kg (ppm)	2.5	99	73-122

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

506569

SAMPLE CHAIN OF CUSTODY

ME 06-80-15

104/152

Send Report To Chris Hughes

Company Hydrex

Address 510 Allen St Ste B

City, State, ZIP Kelso WA 98626

Phone # 360-705-6079 Fax # 360-705-6068

SAMPLERS (signature) [Signature]

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
Rush charges authorized by _____

PROJECT NAME/NO. Tor 01-325

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

REMARKS

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS		
MW01-05	01-E	6-30-15	0920	So.1	5	X	X						
MW04-07	02-1		0935			Y	Y						
MW04-15	03		0930			Y	Y						
MW05-05	04		1005			Y	Y						
MW05-08	05		1010			Y	Y						
MW05-15	06		1015			Y	Y						
MW06-05	07		11:10			X	X						
MW06-06	08		11:15			X	X						sample label MW06-07
MW06-15	09		11:20			X	X						

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

Relinquished by: [Signature]

PRINT NAME Paul A. Henderson

COMPANY Hydrex

DATE 6/25/15

Received by: [Signature]

PRINT NAME Paul [Signature]

COMPANY [Signature]

DATE 6/25/15

Relinquished by:

PRINT NAME

COMPANY

DATE

Received by:

PRINT NAME

COMPANY

DATE

506569

SAMPLE CHAIN OF CUSTODY

HE 06-30-15

044 / 102

Send Report To _____

Company See page 1

Address _____

City, State, ZIP _____

Page # 2 of 2

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by _____

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

REMARKS

PROJECT NAME/NO. 702 01-323

PO# _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS		
MW01-05	LN-1	6-30-15	0905	S-1	5	X	X						* Per Ag
MW01-07	11		0910			X	X						9/1/15 EP
MW01-15	12		0715			X	X						
MW02-05	13		0750			X	X						
MW02-07	14		0755			X	X						
MW02-15	15		0800			X	X						
MW03-05	16		0800			X	X						
MW03-07	17		0815			X	X						*
MW03-12	18		0950			X	X						
MW03-15	19		0855			X	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: <u>[Signature]</u>		Walt A. Henderson		Hydrex		6-30-15	K05
Received by: <u>[Signature]</u>		See box		[Signature]		10/30/15	105
Relinquished by:							
Received by:							

Samples received at 5 °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

July 14, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 7, 2015 from the TOC_01-323, WORFDB8 F&BI 507091 project. There are 11 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: Rob Honsberger, Allison Greiner
HDC0714R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 7, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507091 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507091 -01	HC10-05
507091 -02	HC10-07
507091 -03	HC10-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/15
Date Received: 07/07/15
Project: TOC_01-323, WORFDB8 F&BI 507091
Date Extracted: 07/09/15
Date Analyzed: 07/09/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 58-139)
HC10-05 507091-01	<2	79
HC10-07 507091-02 1/20	1,600	131
HC10-15 507091-03	<2	80
Method Blank 05-1327 MB	<2	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/15
Date Received: 07/07/15
Project: TOC_01-323, WORFDB8 F&BI 507091
Date Extracted: 07/07/15
Date Analyzed: 07/07/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
HC10-05 507091-01	<50	<250	96
HC10-07 507091-02	4,600 x	<250	89
HC10-15 507091-03	<50	<250	99
Method Blank 05-1395 MB	<50	<250	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC10-05	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507091
Date Extracted:	07/07/15	Lab ID:	507091-01
Date Analyzed:	07/07/15	Data File:	070732.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	97	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC10-07	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507091
Date Extracted:	07/07/15	Lab ID:	507091-02
Date Analyzed:	07/07/15	Data File:	070733.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	89	113
Toluene-d8	102	64	137
4-Bromofluorobenzene	104	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.081
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC10-15	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507091
Date Extracted:	07/07/15	Lab ID:	507091-03
Date Analyzed:	07/07/15	Data File:	070734.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	89	113
Toluene-d8	96	64	137
4-Bromofluorobenzene	99	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507091
Date Extracted:	07/07/15	Lab ID:	05-1379 mb
Date Analyzed:	07/07/15	Data File:	070712.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	89	113
Toluene-d8	99	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507091

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

Laboratory Code: 507110-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507091

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

Laboratory Code: 507031-02 (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	100	90	64-133	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	99	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507091

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

Laboratory Code: 507069-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	66	65	26-114	2
Toluene	mg/kg (ppm)	2.5	<0.05	72	72	34-112	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	72	73	34-115	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	75	74	25-125	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	79	79	27-126	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	92	72-106
Toluene	mg/kg (ppm)	2.5	97	74-111
Ethylbenzene	mg/kg (ppm)	2.5	97	75-112
m,p-Xylene	mg/kg (ppm)	5	100	77-115
o-Xylene	mg/kg (ppm)	2.5	105	76-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

507091

SAMPLE CHAIN OF CUSTODY

ME 07-07-15

201/VR

Send Report To Cody Hubben

Company Hydrom

Address 510 Allen St S.L.B

City, State, ZIP Kelso WA 99102

Phone # 360 705-5779 Fax # 360 705-6068

SAMPLERS (signature) 

PROJECT NAME/NO. Per. 01-323

PO #

REMARKS

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	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTEX 5 8260			
HC10-05	01 A.E	7-2-15	8:20	So.1	5	X	X								
HC10-07	02 T		8:25		5	X	X								
HC10-15	03 T		8:35		5	X	X								

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:



R. A. Hubben

Hydrom

7-7-15

11:15

Relinquished by:



Michael Endlich

FCB

↓

↓

Received by:

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

Samples received at 5:00

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

July 30, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 22, 2015 from the TOC_01-323, WORFDB8 F&BI 507332 project. There are 38 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: Rob Honsberger, Allison Greiner
HDC0730R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507332 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507332 -01	HC11-05
507332 -02	HC11-07
507332 -03	HC11-10
507332 -04	HC11-15
507332 -05	HC12-05
507332 -06	HC12-07
507332 -07	HC12-15
507332 -08	HC13-05
507332 -09	HC13-11
507332 -10	HC13-15
507332 -11	HC14-05
507332 -12	HC14-07
507332 -13	HC14-15
507332 -14	HC15-05
507332 -15	HC15-07
507332 -16	HC15-15
507332 -17	HC16-05
507332 -18	HC16-07
507332 -19	HC16-15
507332 -20	HC17-05
507332 -21	HC17-07
507332 -22	HC17-15
507332 -23	MW03-07

Sample MW03-07 was sent to Fremont Analytical for EPH and VPH analyses. The report will be forwarded when available.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15
 Date Received: 07/22/15
 Project: TOC_01-323, WORFDB8 F&BI 507332
 Date Extracted: 07/22/15
 Date Analyzed: 07/22/15 and 07/23/15

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 USING METHOD NWTPH-Gx**
 Results Reported on a Dry Weight Basis
 Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HC11-05 507332-01 1/20	3,000	ip
HC11-07 507332-02 1/20	2,400	131
HC11-10 507332-03 1/5	25	100
HC11-15 507332-04	<2	100
HC12-05 507332-05 1/100	14,000	ip
HC12-07 507332-06 1/50	930	122
HC12-15 507332-07	<2	100
HC13-05 507332-08 1/100	9,100	ip
HC13-11 507332-09 1/20	450	110
HC13-15 507332-10 1/5	15	100
HC14-05 507332-11	<2	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15
Date Received: 07/22/15
Project: TOC_01-323, WORFDB8 F&BI 507332
Date Extracted: 07/22/15
Date Analyzed: 07/22/15 and 07/23/15

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

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

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HC14-07 507332-12	<2	100
HC14-15 507332-13	<2	100
HC15-05 507332-14	34	113
HC15-07 507332-15 1/5	54	84
HC15-15 507332-16	<2	79
HC16-05 507332-17 1/5	14	104
HC16-07 507332-18	4.5	101
HC16-15 507332-19	<2	100
HC17-05 507332-20	<2	81
HC17-07 507332-21	<2	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15
Date Received: 07/22/15
Project: TOC_01-323, WORFDB8 F&BI 507332
Date Extracted: 07/22/15
Date Analyzed: 07/22/15 and 07/23/15

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HC17-15 507332-22	<2	99
MW03-07 507332-23 1/20	470	115
Method Blank 05-1349 MB	<2	100
Method Blank 05-1350 MB	<2	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15
 Date Received: 07/22/15
 Project: TOC_01-323, WORFDB8 F&BI 507332
 Date Extracted: 07/23/15
 Date Analyzed: 07/23/15 and 07/24/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HC11-05 507332-01	2,200 x	<250	103
HC11-07 507332-02	3,500 x	<250	90
HC11-10 507332-03	<50	<250	95
HC11-15 507332-04	<50	<250	88
HC12-05 507332-05	6,700 x	<250	93
HC12-07 507332-06	1,700 x	<250	92
HC12-15 507332-07	<50	<250	94
HC13-05 507332-08	5,700 x	<250	98
HC13-11 507332-09	<50	<250	99
HC13-15 507332-10	<50	<250	97
HC14-05 507332-11	<50	<250	89
HC14-07 507332-12	<50	<250	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15
 Date Received: 07/22/15
 Project: TOC_01-323, WORFDB8 F&BI 507332
 Date Extracted: 07/23/15
 Date Analyzed: 07/23/15 and 07/24/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
HC14-15 507332-13	<50	<250	89
HC15-05 507332-14	<50	<250	99
HC15-07 507332-15	<50	<250	94
HC15-15 507332-16	<50	<250	90
HC16-05 507332-17	<50	<250	100
HC16-07 507332-18	<50	<250	97
HC16-15 507332-19	<50	<250	102
HC17-05 507332-20	<50	<250	91
HC17-07 507332-21	<50	<250	106
HC17-15 507332-22	<50	<250	93
MW03-07 507332-23	510 x	<250	103
Method Blank 05-1495 MB	<50	<250	91
Method Blank 05-1496 MB	<50	<250	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-01
Date Analyzed:	07/24/15	Data File:	072423.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	110	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	0.088
Toluene	0.094
Ethylbenzene	0.36
m,p-Xylene	0.16
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-02
Date Analyzed:	07/24/15	Data File:	072424.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	111	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	0.11
Toluene	0.056
Ethylbenzene	0.69
m,p-Xylene	0.22
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-10	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-03
Date Analyzed:	07/22/15	Data File:	072236.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-04
Date Analyzed:	07/22/15	Data File:	072232.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC12-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-05
Date Analyzed:	07/24/15	Data File:	072425.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	109	55	145
4-Bromofluorobenzene	119	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	0.064
Toluene	0.066
Ethylbenzene	1.8
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC12-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-06
Date Analyzed:	07/24/15	Data File:	072426.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	112	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	0.068
Toluene	0.067
Ethylbenzene	0.80
m,p-Xylene	0.17
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC12-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-07
Date Analyzed:	07/22/15	Data File:	072235.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC13-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-08
Date Analyzed:	07/24/15	Data File:	072348.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	105	55	145
4-Bromofluorobenzene	104	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	0.31
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC13-11	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-09
Date Analyzed:	07/24/15	Data File:	072428.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	107	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	0.055
Toluene	<0.05
Ethylbenzene	0.11
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC13-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-10
Date Analyzed:	07/24/15	Data File:	072429.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC14-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-11
Date Analyzed:	07/22/15	Data File:	072233.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC14-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-12
Date Analyzed:	07/23/15	Data File:	072245.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC14-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-13
Date Analyzed:	07/23/15	Data File:	072246.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC15-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-14
Date Analyzed:	07/24/15	Data File:	072346.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	97	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC15-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-15
Date Analyzed:	07/24/15	Data File:	072347.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC15-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-16
Date Analyzed:	07/23/15	Data File:	072247.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC16-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-17
Date Analyzed:	07/23/15	Data File:	072248.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC16-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-18
Date Analyzed:	07/23/15	Data File:	072249.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC16-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-19
Date Analyzed:	07/23/15	Data File:	072250.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	97	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC17-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-20
Date Analyzed:	07/23/15	Data File:	072251.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC17-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-21
Date Analyzed:	07/23/15	Data File:	072312.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC17-15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-22
Date Analyzed:	07/22/15	Data File:	072234.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-23
Date Analyzed:	07/27/15	Data File:	072728.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	108	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	1.2
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	05-1459 mb
Date Analyzed:	07/22/15	Data File:	072226.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	05-1457 mb2
Date Analyzed:	07/22/15	Data File:	072211.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507329-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507332-22 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507332-02 (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	2,600	107	106	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	103	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507332-21 (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	111	120	63-146	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	109	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507295-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	65	63	29-129	3
Toluene	mg/kg (ppm)	2.5	<0.05	67	67	35-130	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	72	71	32-137	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	70	69	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	71	69	33-134	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	93	68-114
Toluene	mg/kg (ppm)	2.5	95	66-126
Ethylbenzene	mg/kg (ppm)	2.5	100	64-123
m,p-Xylene	mg/kg (ppm)	5	96	78-122
o-Xylene	mg/kg (ppm)	2.5	98	77-124

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507332-22 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	<0.03	63	62	29-129	2
Toluene	mg/kg (ppm)	2.5	<0.05	65	65	35-130	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	69	69	32-137	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	66	65	34-136	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	69	68	33-134	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	90	68-114
Toluene	mg/kg (ppm)	2.5	89	66-126
Ethylbenzene	mg/kg (ppm)	2.5	96	64-123
m,p-Xylene	mg/kg (ppm)	5	92	78-122
o-Xylene	mg/kg (ppm)	2.5	93	77-124

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

507832

SAMPLE CHAIN OF CUSTODY

ME07-22-15

EC4 / 1043

Page # 1 of 3

Send Report To Craig Hillgren

Company Hydrex

Address 510 Allyn St S.E. B

City, State, ZIP Kelso WA 98626

Phone # 360-703-6079 Fax # 360-703-6667

SAMPLERS (signature) At a Way

PROJECT NAME/NO. Box the 01-323

PO#

REMARKS

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	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8260	VOCs by 8260	SVOCs by 8270	HFS	
HCI1-05	05	AF-7-21-15	2000	Soil	5	X	X	X				
HCI1-07	08		2005			X	X	X				
HCI1-10	03		2010			X	X	X				
HCI1-15	04		2015			X	X	X				
HCI2-05	05		2020			X	X	X				
HCI2-07	06		2035			X	X	X				
HCI2-15	07		2040			X	X	X				
HCI3-05	08		2100			X	X	X				
HCI3-11	04		2110			X	X	X				
HCI3-15	01		2115			X	X	X				

Sample received at 5°C

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: <u>[Signature]</u>		<u>Abraham Kerkovich</u>		<u>Hydrex</u>		<u>7/22/15</u>	<u>1720</u>
Received by: <u>[Signature]</u>		<u>Abraham Kerkovich</u>		<u>Hydrex</u>		<u>7/22/15</u>	<u>1720</u>
Relinquished by: <u>[Signature]</u>							
Received by: <u>[Signature]</u>							

SAMPLE CHAIN OF CUSTODY

ME 07-22-15

607333

Page # 2 of 3
E04/184

Send Report To

Company

Address

City, State, ZIP

Phone #

Fax #

See Page 1

SAMPLERS (signature)
PROJECT NAME/NO.
Toc 01-323

PO #

REMARKS

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	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8061B	VOCs by 8260	SVOCs by 8270	HFS	
HC14-05	11A-E	7-21-15	2140	Soil	5	X	X	X				
HC14-07	12		2145		5	X	X	X				
HC14-15	13		2150		5	X	X	X				
HC15-05	14		2255		5	X	X	X				
HC15-07	15		2300		5	X	X	X				
HC15-15	16		2305		5	X	X	X				
HC16-05	17		2330		5	X	X	X				
HC16-07	18		2335		5	X	X	X				
HC16-15	19		2340		5	X	X	X				
HC17-05	20		2400		5	X	X	X				

Samples received at 5%.

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:	<i>[Signature]</i>	Markon Kalkoval		Hydracore	7/23/15	1120	
Received by:	<i>[Signature]</i>	Nhan Phan		FE BT	7/22/15	1120	
Relinquished by:							
Received by:							

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 7, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on July 22, 2015 from the TOC_01-323, WORFDB8 F&BI 507332 project. There is 1 page included in this report.

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: Rob Honsberger, Allison Greiner
HDC0807R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2015 by Friedman & Bruya, Inc. from the HydroCon 01-323 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507332 -01	HC11-05
507332 -02	HC11-07
507332 -03	HC11-10
507332 -04	HC11-15
507332 -05	HC12-05
507332 -06	HC12-07
507332 -07	HC12-15
507332 -08	HC13-05
507332 -09	HC13-11
507332 -10	HC13-15
507332 -11	HC14-05
507332 -12	HC14-07
507332 -13	HC14-15
507332 -14	HC15-05
507332 -15	HC15-07
507332 -16	HC15-15
507332 -17	HC16-05
507332 -18	HC16-07
507332 -19	HC16-15
507332 -20	HC17-05
507332 -21	HC17-07
507332 -22	HC17-15
507332 -23	MW03-07

Sample MW03-07 was sent to Fremont Analytical for EPH and VPH analyses. The report is enclosed.



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Friedman & Bruya

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

RE: 507332

Lab ID: 1507246

August 06, 2015

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 7/23/2015 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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written in a cursive style.

Mike Ridgeway
President



Date: 08/06/2015

CLIENT: Friedman & Bruya
Project: 507332
Lab Order: 1507246

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1507246-001	MW03-07	07/22/2015 1:00 PM	07/23/2015 11:15 AM

CLIENT: Friedman & Bruya

Project: 507332

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 LOQ
- 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

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#: 1507246

Date Reported: 8/6/2015

Client: Friedman & Bruya

Collection Date: 7/22/2015 1:00:00 PM

Project: 507332

Lab ID: 1507246-001

Matrix: Soil

Client Sample ID: MW03-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 11421

Analyst: EC

Aliphatic Hydrocarbon (C8-C10)	293	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C10-C12)	264	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C12-C16)	62.9	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C21-C34)	6.27	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aromatic Hydrocarbon (C8-C10)	12.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C10-C12)	81.1	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C12-C16)	29.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C16-C21)	6.50	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C21-C34)	8.09	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Surr: 1-Chlorooctadecane	89.0	65-140		%REC	1	8/4/2015 3:13:00 PM
Surr: o-Terphenyl	95.9	65-140		%REC	1	8/4/2015 11:31:00 PM

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 11420

Analyst: BC

Aliphatic Hydrocarbon (C5-C6)	6.98	0.856	Q*	mg/Kg-dry	1	7/24/2015 12:25:00 AM
Aliphatic Hydrocarbon (C6-C8)	64.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C8-C10)	38.8	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C10-C12)	32.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C8-C10)	102	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C10-C12)	123	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C12-C13)	134	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Benzene	0.524	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Toluene	1.57	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Ethylbenzene	2.64	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
m,p-Xylene	2.61	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
o-Xylene	3.20	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Naphthalene	4.73	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Surr: 1,4-Difluorobenzene	88.5	65-140		%REC	1	7/24/2015 12:25:00 AM
Surr: Bromofluorobenzene	101	65-140	D	%REC	10	7/24/2015 5:55:00 PM

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).

* - Flagged value is not within established control limits.

Sample Moisture (Percent Moisture)

Batch ID: R23809

Analyst: SB

Percent Moisture	11.3	0.500		wt%	1	7/24/2015 11:36:37 AM
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Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454509							
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	3.60		4.000		90.0	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454508							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	19.4	5.00	20.00	0	97.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	9.59	5.00	10.00	0	95.9	70	130				
Aliphatic Hydrocarbon (C12-C16)	10.8	5.00	10.00	0	108	70	130				
Aliphatic Hydrocarbon (C16-C21)	9.56	5.00	10.00	0	95.6	70	130				
Aliphatic Hydrocarbon (C21-C34)	9.97	5.00	10.00	0	99.7	70	130				
Surr: 1-Chlorooctadecane	3.52		4.000		88.1	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454505							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	1,290	5.06						1,516	15.7	30	E
Aliphatic Hydrocarbon (C10-C12)	1,130	5.06						1,203	5.99	30	E
Aliphatic Hydrocarbon (C12-C16)	2,020	5.06						1,967	2.92	30	E
Aliphatic Hydrocarbon (C16-C21)	396	5.06						402.9	1.65	30	E
Aliphatic Hydrocarbon (C21-C34)	38.3	5.06						37.57	1.89	30	
Surr: 1-Chlorooctadecane	4.07		4.045		101	65	140		0		



Date: 8/6/2015

Work Order: 1507246
CLIENT: Friedman & Bruya
Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454524							
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	3.59		4.000		89.7	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454523							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	8.76	5.00	10.00	0	87.6	70	130				
Aromatic Hydrocarbon (C10-C12)	8.93	5.00	10.00	0	89.2	70	130				
Aromatic Hydrocarbon (C12-C16)	8.40	5.00	10.00	0	84.0	70	130				
Aromatic Hydrocarbon (C16-C21)	9.95	5.00	10.00	0	99.5	70	130				
Aromatic Hydrocarbon (C21-C34)	9.45	5.00	10.00	0	94.5	70	130				
Surr: o-Terphenyl	3.52		4.000		88.0	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454516							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	757	5.06						752.8	0.535	30	E
Aromatic Hydrocarbon (C10-C12)	938	5.06						980.4	4.47	30	E
Aromatic Hydrocarbon (C12-C16)	1,230	5.06						1,236	0.436	30	E
Aromatic Hydrocarbon (C16-C21)	512	5.06						515.6	0.662	30	E
Aromatic Hydrocarbon (C21-C34)	48.9	5.06						51.89	5.87	30	
Surr: o-Terphenyl	3.99		4.045		98.6	65	140		0		



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-11420	SampType: LCS	Units: mg/Kg			Prep Date: 7/23/2015	RunNo: 23816					
Client ID: LCSS	Batch ID: 11420				Analysis Date: 7/23/2015	SeqNo: 451432					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	55.9	2.00	30.00	0	186	70	130				S
Aliphatic Hydrocarbon (C6-C8)	10.9	2.00	10.00	0	109	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.00	2.00	10.00	0	90.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	12.0	2.00	10.00	0	120	70	130				
Aromatic Hydrocarbon (C8-C10)	47.5	2.00	40.00	0	119	70	130				
Aromatic Hydrocarbon (C10-C12)	9.25	2.00	10.00	0	92.5	70	130				
Aromatic Hydrocarbon (C12-C13)	10.8	2.00	10.00	0	108	70	130				
Benzene	12.0	0.500	10.00	0	120	70	130				
Toluene	11.6	0.500	10.00	0	116	70	130				
Ethylbenzene	11.2	0.500	10.00	0	112	70	130				
m,p-Xylene	21.0	0.500	20.00	0	105	70	130				
o-Xylene	11.6	0.500	10.00	0	116	70	130				
Naphthalene	8.71	0.500	10.00	0	87.1	70	130				
Methyl tert-butyl ether (MTBE)	11.6	0.500	10.00	0	116	70	130				
Surr: 1,4-Difluorobenzene	3.21		2.500		128	65	140				
Surr: Bromofluorobenzene	2.67		2.500		107	65	140				

NOTES:

S - Outlying QC recoveries were observed. Detections of Aliphatic C5-C6 may be qualified with an *

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg			Prep Date: 7/23/2015	RunNo: 23816					
Client ID: MBLKS	Batch ID: 11420				Analysis Date: 7/23/2015	SeqNo: 451433					
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						
Benzene	ND	0.500		0	0						
Toluene	ND	0.500		0	0						



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: MBLKS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451433							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	2.63		2.500		105	65	140				
Surr: Bromofluorobenzene	2.46		2.500		98.3	65	140				

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).

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420		Analysis Date: 7/24/2015	SeqNo: 451428							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	40.6	0.909	27.28	9.414	114	70	130				Q*
Aliphatic Hydrocarbon (C6-C8)	11.0	0.909	9.093	6.872	45.5	70	130				S
Aliphatic Hydrocarbon (C8-C10)	17.8	0.909	9.093	14.93	31.6	70	130				S
Aliphatic Hydrocarbon (C10-C12)	116	0.909	9.093	89.40	292	70	130				S
Aromatic Hydrocarbon (C8-C10)	66.3	0.909	36.37	32.13	93.9	70	130				S
Aromatic Hydrocarbon (C10-C12)	158	0.909	9.093	134.1	259	70	130				S
Aromatic Hydrocarbon (C12-C13)	138	0.909	9.093	133.6	45.9	70	130				S
Benzene	6.38	0.227	9.093	0.1555	68.5	70	130				S
Toluene	6.03	0.227	9.093	0.04743	65.8	70	130				S
Ethylbenzene	5.78	0.227	9.093	0.2119	61.3	70	130				S
m,p-Xylene	9.50	0.227	18.19	0.3812	50.1	70	130				S
o-Xylene	4.62	0.227	9.093	0.1966	48.7	70	130				S
Naphthalene	7.44	0.227	9.093	4.415	33.3	70	130				S
Methyl tert-butyl ether (MTBE)	5.41	0.227	9.093	0.2407	56.8	70	130				S
Surr: 1,4-Difluorobenzene	1.49		1.137		131	65	140				
Surr: Bromofluorobenzene	1.59		1.137		140	65	140				



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451428								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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).
 * - Flagged value is not within established control limits.

Sample ID: 1507244-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451426								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	112	0.689		0	0			123.2	9.20	25	EQ*
Aliphatic Hydrocarbon (C6-C8)	135	0.689		0	0			151.6	11.8	25	E
Aliphatic Hydrocarbon (C8-C10)	79.7	0.689		0	0			67.56	16.5	25	E
Aliphatic Hydrocarbon (C10-C12)	131	0.689		0	0			128.4	1.66	25	E
Aromatic Hydrocarbon (C8-C10)	150	0.689		0	0			143.1	4.56	25	E
Aromatic Hydrocarbon (C10-C12)	158	0.689		0	0			158.5	0.179	25	E
Aromatic Hydrocarbon (C12-C13)	96.9	0.689		0	0			94.97	2.02	25	E
Benzene	3.18	0.172		0	0			2.122	40.0	25	RE
Toluene	0.637	0.172		0	0			0.6294	1.24	25	
Ethylbenzene	5.29	0.172		0	0			5.437	2.65	25	
m,p-Xylene	8.00	0.172		0	0			8.208	2.52	25	
o-Xylene	3.83	0.172		0	0			3.877	1.17	25	
Naphthalene	4.41	0.172		0	0			4.533	2.81	25	B
Methyl tert-butyl ether (MTBE)	3.38	0.172		0	0			3.538	4.61	25	
Surr: 1,4-Difluorobenzene	1.03		0.8615		120	65	140		0		
Surr: Bromofluorobenzene	2.17		0.8615		252	65	140		0	0	S

NOTES:

R - High RPD indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
 S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the 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).
 * - Flagged value is not within established control limits.



Work Order: 1507246
CLIENT: Friedman & Bruya
Project: 507332

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID: 1507251-003ADUP	SampType: DUP	Units: wt%	Prep Date: 7/24/2015	RunNo: 23809							
Client ID: BATCH	Batch ID: R23809		Analysis Date: 7/24/2015	SeqNo: 451240							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.31	0.500						4.820	11.2	10	R



Sample Log-In Check List

Client Name: FB	Work Order Number: 1507246
Logged by: Mike Ridgeway	Date Received: 7/23/2015 11:15:00 AM

Chain of Custody

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

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not 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
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
MeOH
NA
12. Is there headspace in the VOA vials? Yes No
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	3.0
Sample	4.2

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1507246

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

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

SUBCONTRACTOR <u>Fremont</u>	
PROJECT NAME/NO. <u>507332</u>	PO # <u>D-589</u>
REMARKS <u>Please Email Results</u>	

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	Notes
MW03-07		7/22/15	01:00	Soil			X	X				

SIGNATURE		PRINT NAME	
Received by 		Michael Erdahl	
Received by		Bill K.	
Relinquished by		Samantha Beerman	
COMPANY		COMPANY	
Friedman & Bruya, Inc.		Friedman & Bruya	
DATE		DATE	
7/23/15		7/23/15	
TIME		TIME	
9:25		10:45	
7/23/15		7/23/15	
11:15		11:15	
FHI		FHI	

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

507332

SAMPLE CHAIN OF CUSTODY ME 07-22-15

Edy / W43

Send Report To Greg Halpern

Company Hydrosun

Address 510 Alms St S.E. B

City, State, ZIP Kelso WA 98626

Phone # 360-703-6079 Fax # 360-703-6664

Page # 1 of 3

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by _____

SAMPLERS (signature) <u>At a Way</u>	PO#
PROJECT NAME/NO. <u>For the 01-323</u>	
REMARKS	

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8260	VOCs by 8260	SVOCs by 8270	HFS		EDH/VPH
Hc1-05	01	07-21-15	2000	Soil	5	X	X	X					*per CH
Hc11-07	08		2005			X	X	X					7/30/15
Hc11-10	03		2010			X	X	X					M4.
Hc11-15	09		2015			X	X	X					
Hc12-05	05		2030			X	X	X					
Hc12-07	06		2035			X	X	X					
Hc12-15	07		2040			X	X	X					
Hc13-05	08		2100			X	X	X					
Hc13-11	09		2110			X	X	X					S.C.
Hc13-15	10		2115			X	X	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: <u>[Signature]</u>		<u>Alison Reikard</u>		<u>Hydrosun</u>		<u>7/22/15</u>	<u>1720</u>
Received by: <u>[Signature]</u>		<u>Alison Reikard</u>		<u>Hydrosun</u>		<u>7/22/15</u>	<u>1720</u>
Relinquished by:							
Received by:							

SAMPLE CHAIN OF CUSTODY

HE 07-22-15

2 of 184

607833

Send Report To _____
 Company See Page 1
 Address _____
 City, State, ZIP _____
 Phone # _____ Fax # _____

SAMPLERS (signature) [Signature]
 PROJECT NAME/NO. Tec 01-323
 PO # _____
 REMARKS _____

Page # 2 of 184
 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	Time	Sample Type	# of containers	ANALYSES REQUESTED							Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8011B	VOCs by 8260	SVOCs by 8270	HFS		
HC14-05	11A-E	7-21-15	2140	Soil	5	X	X	X					
HC14-07	12		2145		5	X	X	X					
HC14-15	13		2150		5	X	X	X					
HC15-05	14		2255		5	X	X	X					
HC15-07	15		2300		5	X	X	X					
HC15-15	16		2305		5	X	X	X					
HC16-05	17		2330		5	X	X	X					
HC16-07	18		2335		5	X	X	X					
HC16-15	19		2340		5	X	X	X					
HC17-05	20		2400		5	X	X	X					

Sample received at 5:00

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
<u>[Signature]</u>	<u>[Signature]</u>	Harvey P. [Signature]	Pham	Hydrex	Hydrex	7/22/15	1120
<u>[Signature]</u>	<u>[Signature]</u>	Pham	Pham	FE & T	FE & T	7/22/15	1120
Received by:							

~~507832~~

SAMPLE CHAIN OF CUSTODY ME 07-22-15 504/104

Send Report To _____

Company _____

Address See file

City, State, ZIP _____

Phone # _____ Fax # _____

Page # 3 of 3

TURNAROUND TIME

Standard (2 Weeks)

RUSH

Rush charges authorized by _____

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

SAMPLERS (signature) [Signature]

PROJECT NAME/NO. Del 01-323

PO# _____

REMARKS

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 801B	VOCs by 8260	SVOCs by 8270	HFS	EDB/EDC		
HCL17-07	RAE	7-21-15	2:05	Su1	5	X	X	X						
HCL17-15	RA	7-21-15	2:10		5	X	X	X						
MW05-07	R3C	7-22-15	0:00	L	5	X	X	X			X			

Samples received at 5:00

SIGNATURE

Relinquished by: [Signature]

Received by: [Signature]

PRINT NAME

Urban Kitzend

Nhan Phan

COMPANY

Hydrex

Flor

DATE

7/29/15

7/22/15

TIME

11:20

11:20

SIGNATURE

Relinquished by: [Signature]

Received by: [Signature]

PRINT NAME

Urban Kitzend

Nhan Phan

COMPANY

Hydrex

Flor

DATE

7/29/15

7/22/15

TIME

11:20

11:20

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 3, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on July 22, 2015 from the TOC_01-323, WORFDB8 F&BI 507332 project. There are 6 pages included in this report.

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: Rob Honsberger, Allison Greiner
HDC0903R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507332 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507332 -01	HC11-05
507332 -02	HC11-07
507332 -03	HC11-10
507332 -04	HC11-15
507332 -05	HC12-05
507332 -06	HC12-07
507332 -07	HC12-15
507332 -08	HC13-05
507332 -09	HC13-11
507332 -10	HC13-15
507332 -11	HC14-05
507332 -12	HC14-07
507332 -13	HC14-15
507332 -14	HC15-05
507332 -15	HC15-07
507332 -16	HC15-15
507332 -17	HC16-05
507332 -18	HC16-07
507332 -19	HC16-15
507332 -20	HC17-05
507332 -21	HC17-07
507332 -22	HC17-15
507332 -23	MW03-07

The 8270D SIM sample analysis was requested outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	HC11-07 ht	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	08/31/15	Lab ID:	507332-02 1/5
Date Analyzed:	09/02/15	Data File:	090204.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	163
Benzo(a)anthracene-d12	96	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.021
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.010
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: HC12-05 ht	Client: HydroCon
Date Received: 07/22/15	Project: TOC_01-323, WORFDB8 F&BI 507332
Date Extracted: 08/31/15	Lab ID: 507332-05 1/5
Date Analyzed: 09/02/15	Data File: 090205.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	98	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.016
Fluorene	0.034
Phenanthrene	0.12
Anthracene	0.016
Fluoranthene	0.070
Pyrene	0.093
Benz(a)anthracene	0.027
Chrysene	0.035
Benzo(a)pyrene	0.018
Benzo(b)fluoranthene	0.022
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	0.010
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	08/31/15	Lab ID:	05-1787 mb 1/5
Date Analyzed:	09/01/15	Data File:	090114.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	163
Benzo(a)anthracene-d12	94	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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/03/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL
SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 508523-03 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	84	85	44-129	1
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	89	91	52-121	2
Acenaphthene	mg/kg (ppm)	0.17	<0.01	85	90	51-123	6
Fluorene	mg/kg (ppm)	0.17	<0.01	88	87	37-137	1
Phenanthrene	mg/kg (ppm)	0.17	<0.01	86	86	34-141	0
Anthracene	mg/kg (ppm)	0.17	<0.01	84	85	32-124	1
Fluoranthene	mg/kg (ppm)	0.17	<0.01	88	86	16-160	2
Pyrene	mg/kg (ppm)	0.17	<0.01	81	82	10-180	1
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	94	94	23-144	0
Chrysene	mg/kg (ppm)	0.17	<0.01	91	91	32-149	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	84	85	23-176	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	83	83	42-139	0
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	83	82	21-163	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	91	90	23-170	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	91	92	31-146	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	84	84	37-133	0

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	86	58-121
Acenaphthylene	mg/kg (ppm)	0.17	84	54-121
Acenaphthene	mg/kg (ppm)	0.17	89	54-123
Fluorene	mg/kg (ppm)	0.17	82	56-127
Phenanthrene	mg/kg (ppm)	0.17	88	55-122
Anthracene	mg/kg (ppm)	0.17	83	50-120
Fluoranthene	mg/kg (ppm)	0.17	103	54-129
Pyrene	mg/kg (ppm)	0.17	87	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	98	51-115
Chrysene	mg/kg (ppm)	0.17	96	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	85	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	84	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	79	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	94	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	96	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	89	52-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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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Seattle, WA 98103

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Friedman & Bruya

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

RE: 507332

Lab ID: 1507246

August 06, 2015

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 7/23/2015 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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written in a cursive style.

Mike Ridgeway
President



Date: 08/06/2015

CLIENT: Friedman & Bruya
Project: 507332
Lab Order: 1507246

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1507246-001	MW03-07	07/22/2015 1:00 PM	07/23/2015 11:15 AM

CLIENT: Friedman & Bruya

Project: 507332

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 LOQ
- 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

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#: 1507246
Date Reported: 8/6/2015

Client: Friedman & Bruya

Collection Date: 7/22/2015 1:00:00 PM

Project: 507332

Lab ID: 1507246-001

Matrix: Soil

Client Sample ID: MW03-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 11421 Analyst: EC

Aliphatic Hydrocarbon (C8-C10)	293	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C10-C12)	264	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C12-C16)	62.9	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C21-C34)	6.27	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aromatic Hydrocarbon (C8-C10)	12.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C10-C12)	81.1	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C12-C16)	29.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C16-C21)	6.50	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C21-C34)	8.09	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Surr: 1-Chlorooctadecane	89.0	65-140		%REC	1	8/4/2015 3:13:00 PM
Surr: o-Terphenyl	95.9	65-140		%REC	1	8/4/2015 11:31:00 PM

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 11420 Analyst: BC

Aliphatic Hydrocarbon (C5-C6)	6.98	0.856	Q*	mg/Kg-dry	1	7/24/2015 12:25:00 AM
Aliphatic Hydrocarbon (C6-C8)	64.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C8-C10)	38.8	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C10-C12)	32.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C8-C10)	102	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C10-C12)	123	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C12-C13)	134	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Benzene	0.524	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Toluene	1.57	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Ethylbenzene	2.64	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
m,p-Xylene	2.61	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
o-Xylene	3.20	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Naphthalene	4.73	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Surr: 1,4-Difluorobenzene	88.5	65-140		%REC	1	7/24/2015 12:25:00 AM
Surr: Bromofluorobenzene	101	65-140	D	%REC	10	7/24/2015 5:55:00 PM

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).

* - Flagged value is not within established control limits.

Sample Moisture (Percent Moisture)

Batch ID: R23809 Analyst: SB

Percent Moisture	11.3	0.500		wt%	1	7/24/2015 11:36:37 AM
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Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454509							
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	3.60		4.000		90.0	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454508							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	19.4	5.00	20.00	0	97.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	9.59	5.00	10.00	0	95.9	70	130				
Aliphatic Hydrocarbon (C12-C16)	10.8	5.00	10.00	0	108	70	130				
Aliphatic Hydrocarbon (C16-C21)	9.56	5.00	10.00	0	95.6	70	130				
Aliphatic Hydrocarbon (C21-C34)	9.97	5.00	10.00	0	99.7	70	130				
Surr: 1-Chlorooctadecane	3.52		4.000		88.1	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454505							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	1,290	5.06						1,516	15.7	30	E
Aliphatic Hydrocarbon (C10-C12)	1,130	5.06						1,203	5.99	30	E
Aliphatic Hydrocarbon (C12-C16)	2,020	5.06						1,967	2.92	30	E
Aliphatic Hydrocarbon (C16-C21)	396	5.06						402.9	1.65	30	E
Aliphatic Hydrocarbon (C21-C34)	38.3	5.06						37.57	1.89	30	
Surr: 1-Chlorooctadecane	4.07		4.045		101	65	140		0		



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454524							
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	3.59		4.000		89.7	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454523							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	8.76	5.00	10.00	0	87.6	70	130				
Aromatic Hydrocarbon (C10-C12)	8.93	5.00	10.00	0	89.2	70	130				
Aromatic Hydrocarbon (C12-C16)	8.40	5.00	10.00	0	84.0	70	130				
Aromatic Hydrocarbon (C16-C21)	9.95	5.00	10.00	0	99.5	70	130				
Aromatic Hydrocarbon (C21-C34)	9.45	5.00	10.00	0	94.5	70	130				
Surr: o-Terphenyl	3.52		4.000		88.0	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454516							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	757	5.06						752.8	0.535	30	E
Aromatic Hydrocarbon (C10-C12)	938	5.06						980.4	4.47	30	E
Aromatic Hydrocarbon (C12-C16)	1,230	5.06						1,236	0.436	30	E
Aromatic Hydrocarbon (C16-C21)	512	5.06						515.6	0.662	30	E
Aromatic Hydrocarbon (C21-C34)	48.9	5.06						51.89	5.87	30	
Surr: o-Terphenyl	3.99		4.045		98.6	65	140		0		



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-11420	SampType: LCS	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: LCSS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451432							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	55.9	2.00	30.00	0	186	70	130				S
Aliphatic Hydrocarbon (C6-C8)	10.9	2.00	10.00	0	109	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.00	2.00	10.00	0	90.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	12.0	2.00	10.00	0	120	70	130				
Aromatic Hydrocarbon (C8-C10)	47.5	2.00	40.00	0	119	70	130				
Aromatic Hydrocarbon (C10-C12)	9.25	2.00	10.00	0	92.5	70	130				
Aromatic Hydrocarbon (C12-C13)	10.8	2.00	10.00	0	108	70	130				
Benzene	12.0	0.500	10.00	0	120	70	130				
Toluene	11.6	0.500	10.00	0	116	70	130				
Ethylbenzene	11.2	0.500	10.00	0	112	70	130				
m,p-Xylene	21.0	0.500	20.00	0	105	70	130				
o-Xylene	11.6	0.500	10.00	0	116	70	130				
Naphthalene	8.71	0.500	10.00	0	87.1	70	130				
Methyl tert-butyl ether (MTBE)	11.6	0.500	10.00	0	116	70	130				
Surr: 1,4-Difluorobenzene	3.21		2.500		128	65	140				
Surr: Bromofluorobenzene	2.67		2.500		107	65	140				

NOTES:

S - Outlying QC recoveries were observed. Detections of Aliphatic C5-C6 may be qualified with an *

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: MBLKS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451433							
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						
Benzene	ND	0.500		0	0						
Toluene	ND	0.500		0	0						



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: MBLKS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451433							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	2.63		2.500		105	65	140				
Surr: Bromofluorobenzene	2.46		2.500		98.3	65	140				

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).

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420		Analysis Date: 7/24/2015	SeqNo: 451428							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	40.6	0.909	27.28	9.414	114	70	130				Q*
Aliphatic Hydrocarbon (C6-C8)	11.0	0.909	9.093	6.872	45.5	70	130				S
Aliphatic Hydrocarbon (C8-C10)	17.8	0.909	9.093	14.93	31.6	70	130				S
Aliphatic Hydrocarbon (C10-C12)	116	0.909	9.093	89.40	292	70	130				S
Aromatic Hydrocarbon (C8-C10)	66.3	0.909	36.37	32.13	93.9	70	130				S
Aromatic Hydrocarbon (C10-C12)	158	0.909	9.093	134.1	259	70	130				S
Aromatic Hydrocarbon (C12-C13)	138	0.909	9.093	133.6	45.9	70	130				S
Benzene	6.38	0.227	9.093	0.1555	68.5	70	130				S
Toluene	6.03	0.227	9.093	0.04743	65.8	70	130				S
Ethylbenzene	5.78	0.227	9.093	0.2119	61.3	70	130				S
m,p-Xylene	9.50	0.227	18.19	0.3812	50.1	70	130				S
o-Xylene	4.62	0.227	9.093	0.1966	48.7	70	130				S
Naphthalene	7.44	0.227	9.093	4.415	33.3	70	130				S
Methyl tert-butyl ether (MTBE)	5.41	0.227	9.093	0.2407	56.8	70	130				S
Surr: 1,4-Difluorobenzene	1.49		1.137		131	65	140				
Surr: Bromofluorobenzene	1.59		1.137		140	65	140				



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451428								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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).
 * - Flagged value is not within established control limits.

Sample ID: 1507244-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451426								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	112	0.689		0	0			123.2	9.20	25	EQ*
Aliphatic Hydrocarbon (C6-C8)	135	0.689		0	0			151.6	11.8	25	E
Aliphatic Hydrocarbon (C8-C10)	79.7	0.689		0	0			67.56	16.5	25	E
Aliphatic Hydrocarbon (C10-C12)	131	0.689		0	0			128.4	1.66	25	E
Aromatic Hydrocarbon (C8-C10)	150	0.689		0	0			143.1	4.56	25	E
Aromatic Hydrocarbon (C10-C12)	158	0.689		0	0			158.5	0.179	25	E
Aromatic Hydrocarbon (C12-C13)	96.9	0.689		0	0			94.97	2.02	25	E
Benzene	3.18	0.172		0	0			2.122	40.0	25	RE
Toluene	0.637	0.172		0	0			0.6294	1.24	25	
Ethylbenzene	5.29	0.172		0	0			5.437	2.65	25	
m,p-Xylene	8.00	0.172		0	0			8.208	2.52	25	
o-Xylene	3.83	0.172		0	0			3.877	1.17	25	
Naphthalene	4.41	0.172		0	0			4.533	2.81	25	B
Methyl tert-butyl ether (MTBE)	3.38	0.172		0	0			3.538	4.61	25	
Surr: 1,4-Difluorobenzene	1.03		0.8615		120	65	140		0		
Surr: Bromofluorobenzene	2.17		0.8615		252	65	140		0	0	S

NOTES:

R - High RPD indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
 S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the 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).
 * - Flagged value is not within established control limits.



Work Order: 1507246
CLIENT: Friedman & Bruya
Project: 507332

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID: 1507251-003ADUP	SampType: DUP	Units: wt%	Prep Date: 7/24/2015	RunNo: 23809							
Client ID: BATCH	Batch ID: R23809		Analysis Date: 7/24/2015	SeqNo: 451240							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.31	0.500						4.820	11.2	10	R



Sample Log-In Check List

Client Name: FB	Work Order Number: 1507246
Logged by: Mike Ridgeway	Date Received: 7/23/2015 11:15:00 AM

Chain of Custody

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

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not 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
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
MeOH
NA
12. Is there headspace in the VOA vials? Yes No
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	3.0
Sample	4.2

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

507332

SAMPLE CHAIN OF CUSTODY

ME 07-22-15

EQ4 / M4 3

Page # 1 of 3

TURN/ROUND TIME

Standard (2 weeks)

RUSH

Rush charges authorized by

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

Send Report To Craig Hillgren

Company Hydrosor

Address 500 Alameda St. S.E. B

City, State, ZIP Kelso WA 99626

Phone # 360-705-6079 Fax # 360-705-6667

SAMPLERS (signature) At Alameda

PROJECT NAME/NO. For the 01-323

PO#

REMARKS

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8260	VOCs by 8260	SVOCs by 8270	HFS	EDH/UPH	PAHs	Notes
HC11-05	01A	7-21-15	2000	Soil	5	X	X	X				X	X	* per CH
HC11-07	08		2005			X	X	X						1/30/15
HC11-10	03		2010			X	X	X						M4.
HC11-15	09		2015			X	X	X						1 - per M5
HC12-05	05		2010			X	X	X				X		8/20
HC12-07	06		2035			X	X	X						
HC12-15	07		2040			X	X	X						
HC13-05	08		2106			X	X	X						
HC13-11	09		2110			X	X	X						Sample received at 5:00
HC13-15	10		2115			X	X	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

Ph (206) 285-8282

Fax (206) 283-5044

FORMS\OC\OC.DOC

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>		<u>Abraham Krikovich</u>		<u>Hydrosor</u>		7/22/15	1120
Received by: <u>[Signature]</u>		<u>Alameda</u>	<u>Ph arm</u>	<u>F&B T</u>		7/22/15	1120
Relinquished by:							
Received by:							

SAMPLE CHAIN OF CUSTODY

HE 07-22-15

607833

Page # 2 of 3
EOP R 184

Send Report To 607833
 Company See Page 1
 Address See Page 1
 City, State, ZIP _____
 Phone # _____ Fax # _____

SAMPLERS (signature) [Signature]
 PROJECT NAME/NO Tac 01.223
 PO # _____
 REMARKS _____

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	Time	Sample Type	# of containers	ANALYSES REQUESTED					Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8004B	VOCs by 8260	SVOCs by 8270		HFS
HC15-05	11A-E	7-21-15	2140	S-1	5	X	X	X				
HC14-07	12		2145		5	X	X	X				
HC15-15	13		2150		5	X	X	X				
HC15-05	14		2255		5	X	X	X				
HC15-07	15		2300		5	X	X	X				
HC15-15	16		2305		5	X	X	X				
HC16-05	17		2330		5	X	X	X				
HC16-07	18		2335		5	X	X	X				
HC16-15	19		2340		5	X	X	X				
HC17-05	20		2400		5	X	X	X				

Samples received at 5:00

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

Received by: <u>[Signature]</u>	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <u>[Signature]</u>		Abner Paikard	Hydracon	7/27/15	1120
Received by: <u>[Signature]</u>		Phan Phan	FE BT	7/27/15	1120
Received by: _____					

501833

SAMPLE CHAIN OF CUSTODY ME 07-22-15

Page # 3 of 3 504/104

Send Report To _____
 Company _____
 Address See file
 City, State, ZIP _____
 Phone # _____ Fax # _____

SAMPLERS (signature) _____
 PROJECT NAME/NO. Dbe 01-323
 PO# _____
 REMARKS _____

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	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	EDS/EDC		EDH/EDF	P/B/T
HL17-07	21AE	7-21-15	2:05	S-1	5	X	X	X							
HL17-15	22	7-21-15	2:10		5	X	X	X							
MW05-07	23C	7-22-15	0:00		5	X	X	X				X			
Samples received at 5:16															

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: _____	_____	Alison Kirkwood	Hydrex	7/22/15	1:20		
Received by: _____	_____	Alison Phelan	FLS	7/22/15	1:20		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 23, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on July 22, 2015 from the TOC_01-323, WORFDB8 F&BI 507332 project. There are 8 pages included in this report.

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: Rob Honsberger, Allison Greiner
HDC0923R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507332 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507332 -01	HC11-05
507332 -02	HC11-07
507332 -03	HC11-10
507332 -04	HC11-15
507332 -05	HC12-05
507332 -06	HC12-07
507332 -07	HC12-15
507332 -08	HC13-05
507332 -09	HC13-11
507332 -10	HC13-15
507332 -11	HC14-05
507332 -12	HC14-07
507332 -13	HC14-15
507332 -14	HC15-05
507332 -15	HC15-07
507332 -16	HC15-15
507332 -17	HC16-05
507332 -18	HC16-07
507332 -19	HC16-15
507332 -20	HC17-05
507332 -21	HC17-07
507332 -22	HC17-15
507332 -23	MW03-07

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-01
Date Analyzed:	07/24/15	Data File:	072423.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	110	65	139

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	0.21

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11-07	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-02
Date Analyzed:	07/24/15	Data File:	072424.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	111	65	139

Compounds:	Concentration mg/kg (ppm)
Hexane	2.1
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC12-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-05
Date Analyzed:	07/24/15	Data File:	072425.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	109	55	145
4-Bromofluorobenzene	119	65	139

Compounds:	Concentration mg/kg (ppm)
Hexane	0.91
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC13-05	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	507332-08
Date Analyzed:	07/24/15	Data File:	072427.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	103	65	139

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507332
Date Extracted:	07/22/15	Lab ID:	05-1457 mb2
Date Analyzed:	07/22/15	Data File:	072211.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dibromoethane (EDB)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/23/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507332

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

Laboratory Code: 507295-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Hexane	mg/kg (ppm)	2.5	<0.25	27	31	10-137	14
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	68	65	21-145	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	67	65	12-160	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	74	72	28-142	3
Naphthalene	mg/kg (ppm)	2.5	<0.05	74	73	14-157	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Hexane	mg/kg (ppm)	2.5	79	43-142
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	95	60-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	95	56-135
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	104	74-132
Naphthalene	mg/kg (ppm)	2.5	103	63-140

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Friedman & Bruya

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

RE: 507332

Lab ID: 1507246

August 06, 2015

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 7/23/2015 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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written in a cursive style.

Mike Ridgeway
President



Date: 08/06/2015

CLIENT: Friedman & Bruya
Project: 507332
Lab Order: 1507246

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1507246-001	MW03-07	07/22/2015 1:00 PM	07/23/2015 11:15 AM

CLIENT: Friedman & Bruya

Project: 507332

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 LOQ
- 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

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#: 1507246

Date Reported: 8/6/2015

Client: Friedman & Bruya

Collection Date: 7/22/2015 1:00:00 PM

Project: 507332

Lab ID: 1507246-001

Matrix: Soil

Client Sample ID: MW03-07

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 11421

Analyst: EC

Aliphatic Hydrocarbon (C8-C10)	293	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C10-C12)	264	50.2	D	mg/Kg-dry	10	8/5/2015 10:53:00 AM
Aliphatic Hydrocarbon (C12-C16)	62.9	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C16-C21)	ND	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aliphatic Hydrocarbon (C21-C34)	6.27	5.02		mg/Kg-dry	1	8/4/2015 3:13:00 PM
Aromatic Hydrocarbon (C8-C10)	12.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C10-C12)	81.1	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C12-C16)	29.2	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C16-C21)	6.50	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Aromatic Hydrocarbon (C21-C34)	8.09	5.02		mg/Kg-dry	1	8/4/2015 11:31:00 PM
Surr: 1-Chlorooctadecane	89.0	65-140		%REC	1	8/4/2015 3:13:00 PM
Surr: o-Terphenyl	95.9	65-140		%REC	1	8/4/2015 11:31:00 PM

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 11420

Analyst: BC

Aliphatic Hydrocarbon (C5-C6)	6.98	0.856	Q*	mg/Kg-dry	1	7/24/2015 12:25:00 AM
Aliphatic Hydrocarbon (C6-C8)	64.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C8-C10)	38.8	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aliphatic Hydrocarbon (C10-C12)	32.2	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C8-C10)	102	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C10-C12)	123	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Aromatic Hydrocarbon (C12-C13)	134	8.56	D	mg/Kg-dry	10	7/24/2015 5:55:00 PM
Benzene	0.524	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Toluene	1.57	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Ethylbenzene	2.64	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
m,p-Xylene	2.61	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
o-Xylene	3.20	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Naphthalene	4.73	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.214		mg/Kg-dry	1	7/24/2015 12:25:00 AM
Surr: 1,4-Difluorobenzene	88.5	65-140		%REC	1	7/24/2015 12:25:00 AM
Surr: Bromofluorobenzene	101	65-140	D	%REC	10	7/24/2015 5:55:00 PM

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).

* - Flagged value is not within established control limits.

Sample Moisture (Percent Moisture)

Batch ID: R23809

Analyst: SB

Percent Moisture	11.3	0.500		wt%	1	7/24/2015 11:36:37 AM
------------------	------	-------	--	-----	---	-----------------------



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454509							
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	3.60		4.000		90.0	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454508							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	19.4	5.00	20.00	0	97.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	9.59	5.00	10.00	0	95.9	70	130				
Aliphatic Hydrocarbon (C12-C16)	10.8	5.00	10.00	0	108	70	130				
Aliphatic Hydrocarbon (C16-C21)	9.56	5.00	10.00	0	95.6	70	130				
Aliphatic Hydrocarbon (C21-C34)	9.97	5.00	10.00	0	99.7	70	130				
Surr: 1-Chlorooctadecane	3.52		4.000		88.1	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454505							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	1,290	5.06						1,516	15.7	30	E
Aliphatic Hydrocarbon (C10-C12)	1,130	5.06						1,203	5.99	30	E
Aliphatic Hydrocarbon (C12-C16)	2,020	5.06						1,967	2.92	30	E
Aliphatic Hydrocarbon (C16-C21)	396	5.06						402.9	1.65	30	E
Aliphatic Hydrocarbon (C21-C34)	38.3	5.06						37.57	1.89	30	
Surr: 1-Chlorooctadecane	4.07		4.045		101	65	140		0		



Date: 8/6/2015

Work Order: 1507246
CLIENT: Friedman & Bruya
Project: 507332

QC SUMMARY REPORT
Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: MB-11421	SampType: MBLK	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: MBLKS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454524							
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	3.59		4.000		89.7	65	140				

Sample ID: LCS-11421	SampType: LCS	Units: mg/Kg	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: LCSS	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454523							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	8.76	5.00	10.00	0	87.6	70	130				
Aromatic Hydrocarbon (C10-C12)	8.93	5.00	10.00	0	89.2	70	130				
Aromatic Hydrocarbon (C12-C16)	8.40	5.00	10.00	0	84.0	70	130				
Aromatic Hydrocarbon (C16-C21)	9.95	5.00	10.00	0	99.5	70	130				
Aromatic Hydrocarbon (C21-C34)	9.45	5.00	10.00	0	94.5	70	130				
Surr: o-Terphenyl	3.52		4.000		88.0	65	140				

Sample ID: 1507244-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/24/2015	RunNo: 24015							
Client ID: BATCH	Batch ID: 11421		Analysis Date: 8/4/2015	SeqNo: 454516							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	757	5.06						752.8	0.535	30	E
Aromatic Hydrocarbon (C10-C12)	938	5.06						980.4	4.47	30	E
Aromatic Hydrocarbon (C12-C16)	1,230	5.06						1,236	0.436	30	E
Aromatic Hydrocarbon (C16-C21)	512	5.06						515.6	0.662	30	E
Aromatic Hydrocarbon (C21-C34)	48.9	5.06						51.89	5.87	30	
Surr: o-Terphenyl	3.99		4.045		98.6	65	140		0		



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: LCS-11420	SampType: LCS	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: LCSS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451432							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	55.9	2.00	30.00	0	186	70	130				S
Aliphatic Hydrocarbon (C6-C8)	10.9	2.00	10.00	0	109	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.00	2.00	10.00	0	90.0	70	130				
Aliphatic Hydrocarbon (C10-C12)	12.0	2.00	10.00	0	120	70	130				
Aromatic Hydrocarbon (C8-C10)	47.5	2.00	40.00	0	119	70	130				
Aromatic Hydrocarbon (C10-C12)	9.25	2.00	10.00	0	92.5	70	130				
Aromatic Hydrocarbon (C12-C13)	10.8	2.00	10.00	0	108	70	130				
Benzene	12.0	0.500	10.00	0	120	70	130				
Toluene	11.6	0.500	10.00	0	116	70	130				
Ethylbenzene	11.2	0.500	10.00	0	112	70	130				
m,p-Xylene	21.0	0.500	20.00	0	105	70	130				
o-Xylene	11.6	0.500	10.00	0	116	70	130				
Naphthalene	8.71	0.500	10.00	0	87.1	70	130				
Methyl tert-butyl ether (MTBE)	11.6	0.500	10.00	0	116	70	130				
Surr: 1,4-Difluorobenzene	3.21		2.500		128	65	140				
Surr: Bromofluorobenzene	2.67		2.500		107	65	140				

NOTES:

S - Outlying QC recoveries were observed. Detections of Aliphatic C5-C6 may be qualified with an *

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: MBLKS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451433							
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						
Benzene	ND	0.500		0	0						
Toluene	ND	0.500		0	0						



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: MB-11420	SampType: MBLK	Units: mg/Kg	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: MBLKS	Batch ID: 11420		Analysis Date: 7/23/2015	SeqNo: 451433							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	2.63		2.500		105	65	140				
Surr: Bromofluorobenzene	2.46		2.500		98.3	65	140				

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).

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420		Analysis Date: 7/24/2015	SeqNo: 451428							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aliphatic Hydrocarbon (C5-C6)	40.6	0.909	27.28	9.414	114	70	130				Q*
Aliphatic Hydrocarbon (C6-C8)	11.0	0.909	9.093	6.872	45.5	70	130				S
Aliphatic Hydrocarbon (C8-C10)	17.8	0.909	9.093	14.93	31.6	70	130				S
Aliphatic Hydrocarbon (C10-C12)	116	0.909	9.093	89.40	292	70	130				S
Aromatic Hydrocarbon (C8-C10)	66.3	0.909	36.37	32.13	93.9	70	130				S
Aromatic Hydrocarbon (C10-C12)	158	0.909	9.093	134.1	259	70	130				S
Aromatic Hydrocarbon (C12-C13)	138	0.909	9.093	133.6	45.9	70	130				S
Benzene	6.38	0.227	9.093	0.1555	68.5	70	130				S
Toluene	6.03	0.227	9.093	0.04743	65.8	70	130				S
Ethylbenzene	5.78	0.227	9.093	0.2119	61.3	70	130				S
m,p-Xylene	9.50	0.227	18.19	0.3812	50.1	70	130				S
o-Xylene	4.62	0.227	9.093	0.1966	48.7	70	130				S
Naphthalene	7.44	0.227	9.093	4.415	33.3	70	130				S
Methyl tert-butyl ether (MTBE)	5.41	0.227	9.093	0.2407	56.8	70	130				S
Surr: 1,4-Difluorobenzene	1.49		1.137		131	65	140				
Surr: Bromofluorobenzene	1.59		1.137		140	65	140				



Date: 8/6/2015

Work Order: 1507246
 CLIENT: Friedman & Bruya
 Project: 507332

QC SUMMARY REPORT
Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: 1507245-001BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451428								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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).
 * - Flagged value is not within established control limits.

Sample ID: 1507244-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 7/23/2015	RunNo: 23816							
Client ID: BATCH	Batch ID: 11420	Analysis Date: 7/24/2015	SeqNo: 451426								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	112	0.689		0	0			123.2	9.20	25	EQ*
Aliphatic Hydrocarbon (C6-C8)	135	0.689		0	0			151.6	11.8	25	E
Aliphatic Hydrocarbon (C8-C10)	79.7	0.689		0	0			67.56	16.5	25	E
Aliphatic Hydrocarbon (C10-C12)	131	0.689		0	0			128.4	1.66	25	E
Aromatic Hydrocarbon (C8-C10)	150	0.689		0	0			143.1	4.56	25	E
Aromatic Hydrocarbon (C10-C12)	158	0.689		0	0			158.5	0.179	25	E
Aromatic Hydrocarbon (C12-C13)	96.9	0.689		0	0			94.97	2.02	25	E
Benzene	3.18	0.172		0	0			2.122	40.0	25	RE
Toluene	0.637	0.172		0	0			0.6294	1.24	25	
Ethylbenzene	5.29	0.172		0	0			5.437	2.65	25	
m,p-Xylene	8.00	0.172		0	0			8.208	2.52	25	
o-Xylene	3.83	0.172		0	0			3.877	1.17	25	
Naphthalene	4.41	0.172		0	0			4.533	2.81	25	B
Methyl tert-butyl ether (MTBE)	3.38	0.172		0	0			3.538	4.61	25	
Surr: 1,4-Difluorobenzene	1.03		0.8615		120	65	140		0		
Surr: Bromofluorobenzene	2.17		0.8615		252	65	140		0	0	S

NOTES:

R - High RPD indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
 S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the 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).
 * - Flagged value is not within established control limits.



Work Order: 1507246
CLIENT: Friedman & Bruya
Project: 507332

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID: 1507251-003ADUP	SampType: DUP	Units: wt%	Prep Date: 7/24/2015	RunNo: 23809							
Client ID: BATCH	Batch ID: R23809		Analysis Date: 7/24/2015	SeqNo: 451240							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.31	0.500						4.820	11.2	10	R



Sample Log-In Check List

Client Name: FB	Work Order Number: 1507246
Logged by: Mike Ridgeway	Date Received: 7/23/2015 11:15:00 AM

Chain of Custody

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

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not 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
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
MeOH
NA
12. Is there headspace in the VOA vials? Yes No
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	3.0
Sample	4.2

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

507332

SAMPLE CHAIN OF CUSTODY

ME07-22-15

EQ4 / 1043

Send Report To Craig Hillman

Company Hydrex

Address 500 Alameda St. S.E.

City, State, ZIP Kelso WA 99626

Phone # 360-705-6079 Fax # 360-705-6079

Page # 1 of 3

TURNAROUND TIME
Standard (2 Weeks)
Rush charges authorized by

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

SAMPLERS (signature) <u>At a Way</u>	PO#
PROJECT NAME/NO. <u>Trc No 01-323</u>	
REMARKS	

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED										Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8260	VOCs by 8260	SVOCs by 8270	HFS	EDH/UPH	PAH's	EDS, EDC, MIBE, FOSX, MIBK		
HC1-06	01A	8-2-15	2000	S:1	5	X	X	X	X	X	X	X	X	X	X	* per A6 9/1/15 SZ
HC1-07	08		2005			X	X	X	X	X	X	X	X	X	X	* per CH 7/30/15
HC1-10	03		2010			X	X	X	X	X	X	X	X	X	X	M4.
HC1-15	04		2015			X	X	X	X	X	X	X	X	X	X	1 - per H5 8/20
HC12-05	05		2020			X	X	X	X	X	X	X	X	X	X	
HC12-07	06		2025			X	X	X	X	X	X	X	X	X	X	
HC12-15	07		2040			X	X	X	X	X	X	X	X	X	X	
HC13-05	08		2100			X	X	X	X	X	X	X	X	X	X	
HC13-11	04		2110			X	X	X	X	X	X	X	X	X	X	
HC13-15	01		2115			X	X	X	X	X	X	X	X	X	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 <u>[Signature]</u>		<u>Harmon Kayward</u>		<u>Hydrex</u>		7/22/15	1720
Received by <u>[Signature]</u>		<u>Alison Plann</u>		<u>F&B</u>		7/22/15	1720
Relinquished by:							
Received by:							

SAMPLE CHAIN OF CUSTODY HE 07-22-15

Send Report To: 607833

Company: See Page 1

Address: See Page 1

City, State, ZIP: _____

Phone #: _____

Fax #: _____

Page # 2 of 3

TURN/AROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by _____

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

SAMPLERS (signature) <u>[Signature]</u>		PO #
PROJECT NAME/NO	<u>Toe 01-223</u>	
REMARKS		

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8013B	VOCs by 8260	SVOCs by 8270	HPS	
HC14-05	11A-E	7-24-15	2140	Soil	5	X	X	X				
HC14-07	12		2145		5	X	X	X				
HC14-15	13		2150		5	X	X	X				
HC15-05	14		2255		5	X	X	X				
HC15-07	15		2300		5	X	X	X				
HC15-15	16		2305		5	X	X	X				
HC16-05	17		2330		5	X	X	X				
HC16-07	18		2335		5	X	X	X				
HC16-15	19		2340		5	X	X	X				
HC17-05	20		2400		5	X	X	X				

Samples received at 5:15

Friedman & Bruyno, Inc.
 3018 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 266-8282
 Fax (206) 263-5044
 FORMS\DOC\DOC.DOC

Requested by: <u>[Signature]</u>	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <u>[Signature]</u>		<u>Walter Kilkend</u>	<u>Hydrion</u>	<u>7/23/15</u>	<u>1120</u>
Requested by: <u>[Signature]</u>		<u>Walter Kilkend</u>	<u>Hydrion</u>	<u>7/22/15</u>	<u>1120</u>
Received by: _____					

5078332

SAMPLE CHAIN OF CUSTODY ME 07-22-15

Boh/VCCY

Page #

3 of 3

Send Report To See Part
Company _____
Address _____
City, State, ZIP _____
Phone # _____ Fax # _____

SAMPLERS (signature) <u>[Signature]</u>	PO#
PROJECT NAME/NO. <u>Dic 01-323</u>	
REMARKS	

<input checked="" type="checkbox"/> Standard (2 Weeks) <input type="checkbox"/> RUSH Rush charges authorized by _____	SAMPLE DISPOSAL <input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Return samples <input type="checkbox"/> Will call with instructions
---	--

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS				
HL17-07	21AE	7-21-15	2405	Soil	5	X	X	X							
HL17-15	8A	7-21-15	2410		5	X	X	X							
Hw05-07	83C	7-22-15	0100		5	X	X	X				X			

Samples requested at 5:16

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

Relinquished by: <u>[Signature]</u>	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>[Signature]</u>		Urban Kikond	Hydrex	7/22/15	1120
Relinquished by: <u>[Signature]</u>		Phan Phan	FL 85	7/22/15	1120
Received by:					

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

July 21, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 10, 2015 from the TOC_01-323, WORFDB8 F&BI 507151 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Rob Honsberger, Allison Greiner
HDC0721R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 10, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507151 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507151 -01	MW01
507151 -02	MW02
507151 -03	MW03
507151 -04	MW04
507151 -05	MW05
507151 -06	MW06
507151 -07	MW99

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15
Date Received: 07/10/15
Project: TOC_01-323, WORFDB8 F&BI 507151
Date Extracted: 07/10/15
Date Analyzed: 07/10/15

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
MW01 507151-01	<100	116
MW02 507151-02 1/10	4,100	120
MW03 507151-03 1/10	3,900	118
MW04 507151-04	<100	94
MW05 507151-05	<100	117
MW06 507151-06	<100	116
MW99 507151-07 1/10	4,200	99
Method Blank 05-1326 MB	<100	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15
 Date Received: 07/10/15
 Project: TOC_01-323, WORFDB8 F&BI 507151
 Date Extracted: 07/13/15
 Date Analyzed: 07/14/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 47-140)
MW01 507151-01	67 x	<250	87
MW02 507151-02	4,600 x	<250	79
MW03 507151-03	4,400 x	<250	78
MW04 507151-04	<50	<250	78
MW05 507151-05	100 x	<250	93
MW06 507151-06	<50	<250	102
MW99 507151-07	4,400 x	<250	77
Method Blank 05-1427 MB	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW01	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-01
Date Analyzed:	07/14/15	Data File:	507151-01.015
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	91	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW02	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-02
Date Analyzed:	07/14/15	Data File:	507151-02.037
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Lead	1.68

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW03	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-03
Date Analyzed:	07/14/15	Data File:	507151-03.038
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW04	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-04
Date Analyzed:	07/14/15	Data File:	507151-04.039
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	89	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW05	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-05
Date Analyzed:	07/14/15	Data File:	507151-05.041
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	91	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW06	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-06
Date Analyzed:	07/14/15	Data File:	507151-06.042
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW99	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	507151-07
Date Analyzed:	07/14/15	Data File:	507151-07.043
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	95	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/13/15	Lab ID:	I5-393 mb
Date Analyzed:	07/14/15	Data File:	I5-393 mb.013
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	95	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-01
Date Analyzed:	07/10/15	Data File:	071024.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	97	91	108
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-02
Date Analyzed:	07/10/15	Data File:	071028.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	8.1
Toluene	4.8
Ethylbenzene	36
m,p-Xylene	8.3
o-Xylene	1.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-03
Date Analyzed:	07/10/15	Data File:	071030.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	110	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.76
Toluene	1.4
Ethylbenzene	26
m,p-Xylene	3.6
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-04
Date Analyzed:	07/10/15	Data File:	071025.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	98	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-05
Date Analyzed:	07/10/15	Data File:	071026.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	96	91	108
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW06	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-06
Date Analyzed:	07/10/15	Data File:	071027.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	99	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-07
Date Analyzed:	07/10/15	Data File:	071029.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	103	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.79
Toluene	1.3
Ethylbenzene	26
m,p-Xylene	3.5
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	05-1402 mb
Date Analyzed:	07/10/15	Data File:	071010.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	97	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

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

Laboratory Code: 507149-04 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	92	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

**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	100	61-133	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 507151-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	109	104	79-121	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	104	83-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

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

Laboratory Code: 507113-35 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<0.35	<0.35	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
m,p-Xylene	ug/L (ppb)	<2	<2	nm
o-Xylene	ug/L (ppb)	<1	<1	nm

Laboratory Code: 507151-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	93	78-108
Toluene	ug/L (ppb)	50	<1	95	73-117
Ethylbenzene	ug/L (ppb)	50	<1	97	71-120
m,p-Xylene	ug/L (ppb)	100	<2	99	63-128
o-Xylene	ug/L (ppb)	50	<1	102	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	91	91	81-108	0
Toluene	ug/L (ppb)	50	94	94	83-108	0
Ethylbenzene	ug/L (ppb)	50	96	97	83-111	1
m,p-Xylene	ug/L (ppb)	100	99	99	84-112	0
o-Xylene	ug/L (ppb)	50	102	104	81-117	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

507151

SAMPLE CHAIN OF CUSTODY ME 07-10-15 13/AIS/203

Send Report To Creig Hultgren
 Company Hydreon Environmental
 Address 510 Allen Street, Suite B
 City, State, ZIP Kelso, WA 98626
 Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) <u>Larry Namba</u>	PROJECT NAME/NO. <u>TOC Kent (01-323)</u>	PO#
REMARKS <u>Dissolved lead samples were field filtered and preserved</u>		

Page # 1 of 1 203

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	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	BTEX VOCs by 8260	SVOCs by 8270	HFS	
MW01	01A	07/09/15	1316	water	6	✓	✓	✓	✓	✓	✓	
MW02	02	07/09/15	1358	water	6	✓	✓	✓	✓	✓	✓	
MW03	03	07/09/15	1447	water	6	✓	✓	✓	✓	✓	✓	
MW04	04	07/09/15	1552	water	6	✓	✓	✓	✓	✓	✓	
MW05	05	07/09/15	1209	water	6	✓	✓	✓	✓	✓	✓	
MW06	06	07/10/15	1033	water	6	✓	✓	✓	✓	✓	✓	
MW09	09	07/09/15	1502	water	6	✓	✓	✓	✓	✓	✓	

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

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>		<u>Larry Namba</u>		<u>Hydreon Environmental</u>		<u>07/09/15</u>	<u>1337</u>
Received by: <u>[Signature]</u>		<u>Nhan Phan</u>		<u>F&BI</u>		<u>7/10/15</u>	<u>1337-</u>
Relinquished by:							
Received by:							
Received by:				Samples received at		<u>4</u>	<u>°C</u>

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
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fbi@isomedia.com
www.friedmanandbruya.com

September 3, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on July 10, 2015 from the TOC_01-323, WORFDB8 F&BI 507151 project. There are 5 pages included in this report.

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: Rob Honsberger, Allison Greiner
HDC0903R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 10, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507151 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507151 -01	MW01
507151 -02	MW02
507151 -03	MW03
507151 -04	MW04
507151 -05	MW05
507151 -06	MW06
507151 -07	MW99

The 8270D SIM sample analysis was requested outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW02 ht	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	08/31/15	Lab ID:	507151-02 1/2
Date Analyzed:	09/01/15	Data File:	090122.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	31	160
Benzo(a)anthracene-d12	102	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	4.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	08/31/15	Lab ID:	05-1789 mb
Date Analyzed:	09/01/15	Data File:	090105.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	160
Benzo(a)anthracene-d12	94	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/03/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR PNA'S 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	83	83	67-116	0
Acenaphthylene	ug/L (ppb)	1	88	91	65-119	3
Acenaphthene	ug/L (ppb)	1	86	86	66-118	0
Fluorene	ug/L (ppb)	1	87	88	64-125	1
Phenanthrene	ug/L (ppb)	1	87	89	67-120	2
Anthracene	ug/L (ppb)	1	86	89	65-122	3
Fluoranthene	ug/L (ppb)	1	93	97	65-127	4
Pyrene	ug/L (ppb)	1	92	93	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	104	105	60-118	1
Chrysene	ug/L (ppb)	1	100	101	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	85	88	55-135	3
Benzo(k)fluoranthene	ug/L (ppb)	1	81	84	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	84	87	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	88	90	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	88	37-133	6
Benzo(g,h,i)perylene	ug/L (ppb)	1	81	85	34-135	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

507/151

SAMPLE CHAIN OF CUSTODY ME 07-10-15 13/AIS/1003

Send Report To Craig Hultgren
 Company Hydrex Environmental
 Address 510 Allen Street, Suite B
 City, State, ZIP Kelso, WA 98626
 Phone # 360.703.6079 Fax # 360.703.6086

SAMPLERS (signature) <u>Larry Namba</u>	PO#
PROJECT NAME/NO. <u>TDC Kent (01-323)</u>	
REMARKS <u>Dissolved lead samples were field filtered and preserved</u>	

Page # 1 of 1,003

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	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	BTEX VOCs by 8260	SVOCs by 8270	HFS	Dissolved Lead		
MW01	01A	07/09/15	1316	water	6	✓	✓	✓	✓	✓	✓	✓	PAI	① - analyze
MW02	02	07/09/15	1358	water	6	✓	✓	✓	✓	✓	✓	✓		wherever
MW03	03	07/09/15	1447	water	6	✓	✓	✓	✓	✓	✓	✓		sample has
MW04	04	07/09/15	1552	water	6	✓	✓	✓	✓	✓	✓	✓		more volume
MW05	05	07/09/15	1209	water	6	✓	✓	✓	✓	✓	✓	✓		
MW06	06	07/10/15	1033	water	6	✓	✓	✓	✓	✓	✓	✓		
MW09	09	07/09/15	1502	water	6	✓	✓	✓	✓	✓	✓	✓		

Friedman & Bryna, 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
<u>[Signature]</u>	<u>Larry Namba</u>	<u>Hydrex Environmental</u>	<u>07/09/15</u>	<u>1337</u>
Relinquished by:				
Received by:	<u>Nhan Phan</u>	<u>FE&E</u>	<u>7/10/15</u>	<u>1337</u>
Relinquished by:				
Received by:				
		Samples received	<u>4</u>	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 23, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the additional results from the testing of material submitted on July 10, 2015 from the TOC_01-323, WORFDB8 F&BI 507151 project. There are 6 pages included in this report.

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: Rob Honsberger, Allison Greiner
HDC0923R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 10, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507151 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507151 -01	MW01
507151 -02	MW02
507151 -03	MW03
507151 -04	MW04
507151 -05	MW05
507151 -06	MW06
507151 -07	MW99

The 8260C hexane sample and sample duplicate failed the relative percent difference acceptance criteria. The matrix spike, laboratory control sample, and laboratory control sample duplicate passed the acceptance criteria, therefore the data were likely due to sample inhomogeneity.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-02
Date Analyzed:	07/10/15	Data File:	071028.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Hexane	13
Methyl t-butyl ether (MTBE)	<1
1,2-Dibromoethane (EDB)	<1
1,2-Dichloroethane (EDC)	<1
Naphthalene	46

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03	Client:	HydroCon
Date Received:	07/10/15	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	507151-03
Date Analyzed:	07/10/15	Data File:	071030.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	110	76	126

Compounds:	Concentration ug/L (ppb)
Hexane	5.2
Methyl t-butyl ether (MTBE)	<1
1,2-Dibromoethane (EDB)	<1
1,2-Dichloroethane (EDC)	<1
Naphthalene	29

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507151
Date Extracted:	07/10/15	Lab ID:	05-1402 mb
Date Analyzed:	07/10/15	Data File:	071010.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	97	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Hexane	<1
Methyl t-butyl ether (MTBE)	<1
1,2-Dibromoethane (EDB)	<1
1,2-Dichloroethane (EDC)	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/23/15

Date Received: 07/10/15

Project: TOC_01-323, WORFDB8 F&BI 507151

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

Laboratory Code: 507113-35 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Hexane	ug/L (ppb)	17	8.9	63 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	<1	<1	nm
1,2-Dichloroethane (EDC)	ug/L (ppb)	<1	<1	nm
1,2-Dibromoethane (EDB)	ug/L (ppb)	<1	<1	nm
Naphthalene	ug/L (ppb)	<1	<1	nm

Laboratory Code: 507151-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexane	ug/L (ppb)	50	<1	92	61-127
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	68-125
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	90	70-119
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	98	79-120
Naphthalene	ug/L (ppb)	50	<1	110	62-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Hexane	ug/L (ppb)	50	90	90	51-153	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	104	70-122	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	88	88	79-109	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	98	95	82-118	3
Naphthalene	ug/L (ppb)	50	112	114	72-131	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
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www.friedmanandbruya.com

July 21, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 7, 2015 from the TOC_01-323, WORFDB8 F&BI 507090 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Rob Honsberger, Allison Greiner
HDC0721R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 7, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507090 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507090-01	HC01
507090-02	HC02
507090-03	HC04
507090-04	HC05
507090-05	HC07
507090-06	HC08
507090-07	HC10

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15
Date Received: 07/07/15
Project: TOC_01-323, WORFDB8 F&BI 507090
Date Extracted: 07/08/15
Date Analyzed: 07/08/15

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
HC01 507090-01	460	126
HC02 507090-02 1/10	6,900	117
HC04 507090-03	1,200	142
HC05 507090-04	100	110
HC07 507090-05	130	109
HC08 507090-06	<100	108
HC10 507090-07 1/10	1,900	119
Method Blank 05-1325 MB	<100	114

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15
Date Received: 07/07/15
Project: TOC_01-323, WORFDB8 F&BI 507090
Date Extracted: 07/08/15
Date Analyzed: 07/08/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 47-140)
HC01 507090-01	350 x	<250	58
HC02 507090-02	19,000 x	510 x	73
HC04 507090-03	740 x	<250	60
HC05 507090-04	90 x	<250	84
HC07 507090-05	140 x	<250	99
HC08 507090-06	110 x	<250	76
HC10 507090-07	1,800 x	<250	93
Method Blank 05-1389 MB2	<50	<250	73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC01	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-01
Date Analyzed:	07/16/15	Data File:	507090-01.043
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Lead	1.21

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC02	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-02
Date Analyzed:	07/16/15	Data File:	507090-02.044
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration ug/L (ppb)
Lead	63.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC04	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-03
Date Analyzed:	07/16/15	Data File:	507090-03.045
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration ug/L (ppb)
Lead	1.75

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC05	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-04
Date Analyzed:	07/16/15	Data File:	507090-04.046
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Lead	14.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC07	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-05
Date Analyzed:	07/16/15	Data File:	507090-05.047
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	102	60	125

Analyte:	Concentration ug/L (ppb)
Lead	16.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC08	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-06
Date Analyzed:	07/16/15	Data File:	507090-06.048
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Lead	3.92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC10	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	507090-07
Date Analyzed:	07/16/15	Data File:	507090-07.049
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Lead	17.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/15/15	Lab ID:	I5-395 mb
Date Analyzed:	07/16/15	Data File:	I5-395 mb.051
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower	Upper
Holmium	90	Limit:	Limit:
		60	125

Analyte:	Concentration
	ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC01	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-01
Date Analyzed:	07/08/15	Data File:	070813.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	97	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.71
Toluene	6.8
Ethylbenzene	1.8
m,p-Xylene	9.8
o-Xylene	4.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC02	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-02
Date Analyzed:	07/08/15	Data File:	070814.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	106	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	20
Toluene	15
Ethylbenzene	40
m,p-Xylene	15
o-Xylene	6.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC04	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-03
Date Analyzed:	07/08/15	Data File:	070815.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)
Benzene	0.44
Toluene	4.4
Ethylbenzene	1.3
m,p-Xylene	7.1
o-Xylene	3.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC05	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-04
Date Analyzed:	07/08/15	Data File:	070816.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	98	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.49
Toluene	5.6
Ethylbenzene	1.5
m,p-Xylene	7.4
o-Xylene	3.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC07	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-05
Date Analyzed:	07/08/15	Data File:	070817.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	97	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.85
Toluene	9.0
Ethylbenzene	2.2
m,p-Xylene	12
o-Xylene	5.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC08	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-06
Date Analyzed:	07/08/15	Data File:	070818.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	98	91	108
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	0.52
Toluene	5.2
Ethylbenzene	1.2
m,p-Xylene	6.3
o-Xylene	2.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC10	Client:	HydroCon
Date Received:	07/07/15	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	507090-07
Date Analyzed:	07/08/15	Data File:	070819.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)
Benzene	0.75
Toluene	8.1
Ethylbenzene	3.8
m,p-Xylene	12
o-Xylene	5.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507090
Date Extracted:	07/08/15	Lab ID:	05-1401 mb
Date Analyzed:	07/08/15	Data File:	070812.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	99	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507090

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	99	97	70-119	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507090

**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	106	93	61-133	13

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507090

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

Laboratory Code: 507113-35 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	106	107	79-121	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	103	83-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/21/15

Date Received: 07/07/15

Project: TOC_01-323, WORFDB8 F&BI 507090

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

Laboratory Code: 507090-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	0.71	92	78-108
Toluene	ug/L (ppb)	50	6.8	97	73-117
Ethylbenzene	ug/L (ppb)	50	1.8	96	71-120
m,p-Xylene	ug/L (ppb)	100	9.8	97	63-128
o-Xylene	ug/L (ppb)	50	4.3	101	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	91	88	81-108	3
Toluene	ug/L (ppb)	50	95	91	83-108	4
Ethylbenzene	ug/L (ppb)	50	96	92	83-111	4
m,p-Xylene	ug/L (ppb)	100	100	94	84-112	6
o-Xylene	ug/L (ppb)	50	102	96	81-117	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

507090

SAMPLE CHAIN OF CUSTODY

ME 07-07-15

AIS/DO4/VS

Send Report To Craig Hillson

Company Hydrex

Address 570 Allen St S.L.B

City, State, ZIP Wlsu WA 98102

Phone # 360 703-6079 Fax # 360 703-6068

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

SAMPLERS (signature) <u>[Signature]</u>		PROJECT NAME/NO. <u>Rc 07-323</u>	PO #
REMARKS			

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED							Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTEX by 8260		Total lead
H001	01 A-F	7-7-15	0915	water	6	X	X				X	X		
H002	02		0715			X	X				X	X		
H004	03		0730			X	X				X	X		
H005	04		0745			X	X				X	X		
H007	05		0800			X	X				X	X		
H008	06		0815			X	X				X	X		
H010	07		0850			X	X				X	X		

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: [Signature]

Relinquished by: Paul A. Ludwig

COMPANY: Hydrex

DATE: 7-7-15

TIME: 1145

Received by: [Signature]

Received by: Michael Erdahl

COMPANY: F4 Blin

DATE: ↓

TIME: ↓

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

Samples received at 5:00 P.M.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 6, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on July 22, 2015 from the TOC_01-323, WORFDB8 F&BI 507330 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Rob Honsberger, Allison Greiner
HDC0806R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-323, WORFDB8 F&BI 507330 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
507330 -01	HC11
507330 -02	HC12
507330 -03	HC13
507330 -04	HC14
507330 -05	HC15
507330 -06	HC16
507330 -07	HC17

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507330

Date Extracted: 07/22/15

Date Analyzed: 07/22/15 and 07/23/15

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 51-134)
HC11 507330-01	5,000	99
HC12 507330-02 1/40	5,100	89
HC13 507330-03	5,800	118
HC14 507330-04	<100	83
HC15 507330-05	290	99
HC16 507330-06	190	92
HC17 507330-07	<100	83
Method Blank 05-1348 MB	<100	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15
Date Received: 07/22/15
Project: TOC_01-323, WORFDB8 F&BI 507330
Date Extracted: 07/24/15
Date Analyzed: 07/24/15

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 47-140)
HC11 507330-01	7,500 x	290 x	105
HC12 507330-02	1,900 x	<250	101
HC13 507330-03	13,000 x	1,100 x	89
HC14 507330-04	170 x	<250	105
HC15 507330-05	150 x	<250	98
HC16 507330-06	180 x	<250	97
HC17 507330-07	100 x	<250	91
Method Blank 05-1500 MB	<50	<250	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC11	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-01 x10
Date Analyzed:	08/05/15	Data File:	507330-01 x10.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	94	60	125

Analyte:	Concentration ug/L (ppb)
Lead	88.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC12	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-02 x10
Date Analyzed:	08/05/15	Data File:	507330-02 x10.024
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	43.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC13	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-03 x10
Date Analyzed:	08/05/15	Data File:	507330-03 x10.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	77.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC14	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-04 x10
Date Analyzed:	08/05/15	Data File:	507330-04 x10.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Lead	62.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-05 x10
Date Analyzed:	08/05/15	Data File:	507330-05 x10.027
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	23.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC16	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-06 x10
Date Analyzed:	08/05/15	Data File:	507330-06 x10.028
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration ug/L (ppb)
Lead	18.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	HC17	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	507330-07 x10
Date Analyzed:	08/05/15	Data File:	507330-07 x10.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	23.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	HydroCon
Date Received:	NA	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	08/04/15	Lab ID:	I5-427 mb
Date Analyzed:	08/05/15	Data File:	I5-427 mb.013
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	SP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC11	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-01
Date Analyzed:	07/23/15	Data File:	072306.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	109 ip	91	108
4-Bromofluorobenzene	103	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	2.9
Toluene	<1
Ethylbenzene	11
m,p-Xylene	2.9
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC12	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-02
Date Analyzed:	07/23/15	Data File:	072307.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	110 ip	91	108
4-Bromofluorobenzene	108	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	1.5
Toluene	1.2
Ethylbenzene	9.9
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC13	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-03
Date Analyzed:	07/23/15	Data File:	072308.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	113 ip	91	108
4-Bromofluorobenzene	106	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	5.4
Toluene	1.5
Ethylbenzene	6.6
m,p-Xylene	4.5
o-Xylene	1.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC14	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-04
Date Analyzed:	07/22/15	Data File:	072228.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC15	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-05
Date Analyzed:	07/22/15	Data File:	072229.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	105	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC16	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-06
Date Analyzed:	07/22/15	Data File:	072230.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	104	91	108
4-Bromofluorobenzene	101	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HC17	Client:	HydroCon
Date Received:	07/22/15	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	507330-07
Date Analyzed:	07/22/15	Data File:	072231.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	98	76	126

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-323, WORFDB8 F&BI 507330
Date Extracted:	07/22/15	Lab ID:	05-1458 mb
Date Analyzed:	07/22/15	Data File:	072217.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507330

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

Laboratory Code: 507308-04 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507330

**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	110	122	61-133	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507330

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

Laboratory Code: 507430-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	1.00	103	101	79-121	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	108	83-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/15

Date Received: 07/22/15

Project: TOC_01-323, WORFDB8 F&BI 507330

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

Laboratory Code: 507305-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Benzene	ug/L (ppb)	50	<0.35	93	78-108
Toluene	ug/L (ppb)	50	<1	90	73-117
Ethylbenzene	ug/L (ppb)	50	<1	95	71-120
m,p-Xylene	ug/L (ppb)	100	<2	95	63-128
o-Xylene	ug/L (ppb)	50	<1	100	64-129

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	ug/L (ppb)	50	94	95	81-108	1
Toluene	ug/L (ppb)	50	90	92	83-108	2
Ethylbenzene	ug/L (ppb)	50	96	97	83-111	1
m,p-Xylene	ug/L (ppb)	100	97	98	84-112	1
o-Xylene	ug/L (ppb)	50	99	101	81-117	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. 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.

APPENDIX C
Monitoring Well Development Field Forms



Well Development Information

Well I.D. Number: MW02

GENERAL INFORMATION

Project Name (Site Number): ToC Kent 01-323 Hydrocon Project Number: _____

Company Personnel: Warren Rajkovich Date: 7.7.15

Additional Company(ies) On Site (Personnel): _____

Monitoring Well Site Condition(s): Good Accessibility Within Fenced Area _____

Obstructed Access _____

Overgrown Vegetation _____

Other General Site Conditions Regarding Well: _____

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument

Well cap condition: Good Surface Infiltration of Surface Water Needs Replacement Replaced

Initial Headspace reading: Not measured PID Reading _____ ppm Odor: _____

Well diameter: 2-inch 4-inch 6-inch Other: _____

Screen Interval(s): 5-15 (bgs)

Comments _____

DEVELOPMENT INFORMATION

Initial Total well depth: 14.05 ft Initial Depth to product: NA ft Initial Depth to water: 6.73 ft

Initial bottom of well condition: Hard Semi-Soft Soft Not measured

Casing volume: 7.32 ft (H₂O) X 0.16 gal/ft = 1.1712 gal. X 3 = 3.5136 gal.

Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

Development method: Peristaltic Pump Bailer Vacuum Truck Other: _____

Time begin well development: 1225 Time complete well development: 1330

Time	Purge Rate (Gallons/Minute)	Volume Purged	Water Level (BTOC)	Comments
1330	0.221	17.5 G	6.23	Surged Well During Purge. Turbidity would increase then get clearer Final Visibility Slightly Turbid

Final total well depth: 14.05 ft Final depth to product: NA ft Final depth to water: 6.73

Final bottom of well condition: Hard Semi-Soft Soft Not measured

Water Disposal: Drummed Remediation System Other _____ Total Gallons Purged: _____

Comments: _____

APPENDIX D
Groundwater Sample Collection Field Forms



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw01

Project Name (Number): TOC Kent 01-323 Sample I.D.: mw01 Time: 1316
 Hydrocon Project Number: _____ Field Duplicate I.D.: _____ Time: _____
 Date: 09 July 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments New well

PURGING INFORMATION

Total well depth: 14.16 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5-14.5
 Depth to product: NM ft
 Depth to water: 7.25 ft Intake Depth (BTOC): 10 Begin Purging Well: 1257
 Casing volume: 6.91 ft (H₂O) X 0.16 gal/ft = 1.11 gal. X 3 = 3.33 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1258	7.27		20.13	0.572	4.22	3.80 6.30 @	6.3 189	128
1301	7.27	0.184	18.40	0.501	0.63	6.33	198	113
1304	7.28		18.31	0.509	0.48	6.36	197	86.2
1307	7.28		18.42	0.520	0.41	6.36	197	70.6
1310	7.28		18.35	0.522	0.34	6.37	196	57.3
1313	7.28		18.37	0.522	0.31	6.37	195	50.3

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw02

Project Name (Number): TOC Kent (01-323) Sample I.D.: mw02 Time: 1358
 Hydrocon Project Number: _____ Field Duplicate I.D.: _____ Time: _____
 Date: 09 July 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments New well

PURGING INFORMATION

Total well depth: 14.02 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5-14.5
 Depth to product: 4m ft
 Depth to water: 6.73 ft Intake Depth (BTOC): 9 Begin Purging Well: 1339
 Casing volume: 7129 ft (H₂O) X 0.16 gal/ft = 1.17 gal. X 3 = 3.51 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: H₂S / hydrocarbon
@ no sheen - light

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1340	6.76		22.72	0.597	5.82	6.40	170	182
1343	6.78	0.188	19.00	0.585	0.70	6.41	158	170
1346	6.78		18.65	0.588	0.44	6.42	151	123
1349	6.78		18.66	0.587	0.31	6.43	148	108
1352	6.78		18.60	0.585	0.28	6.43	144	89.2
1355	6.78		18.54	0.586	0.27	6.43	142	81.7

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 / <u>4</u> / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No <u>0.45</u> 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW03Project Name (Number): TOC Kent (01-323)
Hydrocon Project Number: _____
Date: 09 July 2015Sample I.D.: MW03 Time: 1447
Field Duplicate I.D.: MW99 Time: 1502
Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments New well

PURGING INFORMATION

Total well depth: 14.15 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5-14.5
Depth to product: NM ft
Depth to water: 6.32 ft Intake Depth (BTOC): 9 Begin Purging Well: 1428
Casing volume: 7.83 ft (H₂O) X 0.16 gal/ft = 1.25 gal. X 3 = 3.75 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: Hydrocarbon odor
very light sheen

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1429	6.43		19.80	0.519	3.94	6.35	170	153
1432	6.42	0.232	18.54	0.506	0.49	6.36	164	122
1435	6.42		18.48	0.500	0.30	6.37	163	94.1
1438	6.42		18.65	0.497	0.25	6.38	161	68.6
1441	6.42		18.73	0.499	0.24	6.39	160	66.7
1444	6.42		18.79	0.499	0.23	6.40	158	62.6

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3/4/6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw04

Project Name (Number): TOE Kent (01-323) Sample I.D.: mw04 Time: 1532
 Hydrocon Project Number: _____ Field Duplicate I.D.: _____ Time: _____
 Date: 09 July 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments New well

PURGING INFORMATION

Total well depth: 14.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5 - 14.5
 Depth to product: Nm ft
 Depth to water: 5.96 ft Intake Depth (BTOC): 8 Begin Purging Well: 1533
 Casing volume: 8.18 ft (H₂O) X 0.16 gal/ft = 1.31 gal. X 3 = 3.93 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"=1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (±10% or ≤10)
1534	6.00		21.27	0.526	6.01	6.51	195	178
1537	6.00	0.252	18.78	0.512	0.95	6.49	196	151
1540	6.00		18.80	0.510	0.62	6.54	197	100
1543	6.01		18.97	0.508	0.62	6.54	197	82.8
1546	6.01		19.15	0.512	0.58	6.54	197	59.3
1549	6.01		19.17	0.512	0.54	6.53	197	54.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw05Project Name (Number): Joe Kent (61-323)
Hydrocon Project Number: _____
Date: 09 July 2015Sample I.D.: mw05 Time: 1209
Field Duplicate I.D.: _____ Time: _____
Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments New well

PURGING INFORMATION

Total well depth: 814.10 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5-14.5
Depth to product: NM ft
Depth to water: 6.23 ft Intake Depth (BTOC): 10 Begin Purging Well: 1144
Casing volume: 7.87 ft (H₂O) X 0.16 gal/ft = 1.26 gal. X 3 = 3.78 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: H₂S

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1146	6.29		18.65	0.510	4.61	7.13	186	278
1148	6.30	0.260	17.70	0.474	0.73	7.13	179	246
1151	6.30		17.62	0.462	0.57	7.13	173	178
1154	6.30		17.62	0.444	0.51	7.09	168	115
1157	6.30		17.50	0.434	0.48	7.00	166	96.0
1200	6.30		17.50	0.420	0.42	6.96	164	79.5
1203			17.50	0.418	0.26	6.89	162	70.3
1206			17.46	0.416	0.22	6.86	161	64.2

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW06Project Name (Number): Tue Kent (01-323)
Hydrocon Project Number: _____
Date: 10 July 2015Sample I.D.: MW06 Time: 1033
Field Duplicate I.D.: _____ Time: _____
Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments New Well

PURGING INFORMATION

Total well depth: 13.49 ft Bottom: Hard Soft Not measured Screen Interval(s): 4.5-14.5
Depth to product: NM ft
Depth to water: 6.61 ft Intake Depth (BTOC): 9 Begin Purging Well: 1014
Casing volume: _____ ft (H₂O) X 0.16 gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"=1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (±10% or ≤10)
1015	6.62		17.22	0.721	2.07	6.58	205	53.5
1018	6.64	0.200	16.70	0.732	0.76	6.59	205	46.1
1021	6.64		15.92	0.729	0.36	6.57	203	39.0
1024	6.64		15.88	0.717	0.33	6.59	203	39.5
1027	6.65		15.90	0.721	0.32	6.56	202	38.6
1030	6.65		15.88	0.715	0.31	6.56	201	38.1
				0.715				

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No (0.45) 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____