

Remedial Investigation

Former Glacier Recycle Facility

June 1, 2018

Site Address:

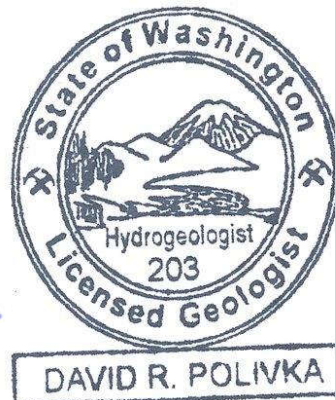
Glacier Recycle
32300 148th Ave. SE
Auburn, WA 98092
Ecology Facility/Site No.: 21135
Ecology Cleanup Site ID: 12326

Prepared for:

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813 "R" St. NW
Auburn, WA 98001

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Focused Subsurface Investigation and Site Status Report

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March 16, 2018

1.0 INTRODUCTION

EcoCon, Inc. (ECI) has prepared this Remedial Investigation (RI) report for a property known as Glacier Recycling at 32300 148th Ave. Southeast, Auburn, Washington (Property/ Subject Property/ Site) (Appendix A) (Ecology Facility/Site No.: 21135; Ecology Cleanup Site ID: 12326).

The Model Toxics Control Act (MTCA) as authorized by the Revised Code of Washington (RCW) Chapter 70.105D and codified in Chapter 173-340 of the Washington Administrative Code (WAC) establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have come to be located. It is implemented by the Washington State Department of Ecology (Ecology). The rules were first published in February 1991, with amendments in January 1996, February 2001, and October 2007. This RI was prepared to in part to meet the requirements of WAC 173-340. In accordance with WAC 173-340-200, the "Site" is defined by the full lateral and vertical extent of contamination that has resulted from historical activities on the Subject Property.

The purpose of RI was to:

- To define the extent of soil and potential groundwater contamination at the Subject Site;
- Address data gaps found in previous investigations on the Subject property;
- To address issues identified by Ecology in an Initial Investigation conducted at the Site in November 2012;
- Identify additional data gaps that a would be of concern to Ecology.

The scope of work was designed to collect the data necessary to effectively characterize contamination present in the effected media and develop a conceptual site model (CSM) which could be used to conduct a Feasibility Study (FS) on the options available for addressing contamination found at the Site. This work was being performed for:

Mr. Larry Wilson, Managing Member
Glacier Recycle Real Property, LLC
813 "R" St. NW
Auburn, WA 98001

1.1 Site Location / Description

The Site is located at 32300 148th Ave. Southeast in Auburn, Washington, and consists of a 25 acre irregularly shaped property consisting of three King County tax parcels (King County parcel numbers: 215200-0075, 215200-0082, and 215200-0083). The Property is located in the Northwest 1/4 of the Northwest 1/4 of Section 14, Township 21 North, Range 5 East, Willamette Meridian. According to the King County Assessor's office, the Property is zoned Rural Residential, one dwelling unit per 5 acres (RA-5)

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The Subject Property has been used for light industrial uses from at least the 1960's through the early 1980s when a concrete pipe manufacturing business operated on the Subject Property. It is reported by others that a wood chipping/recycling operation (Northwest Wood & Fiber Recovery Inc.) operated on the Property between 1990 and 2002, and that construction and demolition material recycling operations have been on the Property since 2006. Glacier Recycling reportedly owned and operated the Site as a construction and demolition material recycling operation from 2006 through 2010. Waste Management of Washington then leased the Subject Property from Glacier Recycling and operated the construction and demolition material recycling operation from 2010 through 2013. Since 2013 the Site has been vacant.

The Site consists of

- The Main Processing Equipment, Office, and Maintenance Building (Main Building) constructed in 1962;
- A concrete pad that surrounds the Main Building to the north, south, and west;
- A concrete and gravel drive that circles the Main Building;
- A former truck scale approximately 100 feet west of the Main Building and another scale approximately the same distance south of the Main Building;
- A soil berm (earth berm) on the eastern, northeastern, and southern edges of the Site; and
- A large fabric covered canopy known as the "hoop structure" directly northeast of the Main Building used as a "tipping area"

There are no current operations at the Site.

The Property is bound:

- To the west by King County Fire District 44 Headquarters Station and Fleet maintenance Facility and then 148th Avenue Southeast.
- To the northwest by 148th Avenue Southeast. Beyond the road to the west are wooded undeveloped land and a golf course to the southwest.
- To the south by Southeast 324th Street, with commercial storage yards beyond the road and some residential development further south;
- To the north by a ravine and undeveloped forested land and further north 148th Avenue Southeast. Beyond 148th Avenue is scattered residential development ; and
- To the east by 152nd Avenue Southeast and then a commercial equipment storage yard. Beyond the storage yard there appears to be a northeast-southwest trending utility easement with residential development beyond.

The greater vicinity is heavily wooded and rural.

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2.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

ECI has reviewed documents for the Subject Property that were provided by Glacier Recycle Real Property, LLC as well as documents ECI was able to obtain from the Washington State Department of Ecology (Ecology). Those documents included:

- Langseth Environmental Services, Inc. - *Phase II Site Investigation Report - 32300 148th Ave. SE -Parcel # 215200-0075*, dated January 17, 2014.
- Washington State Department of Ecology - *Initial Investigation Field Report (ERTS Number: 645340; FSID#: 21135; CSID#: 12326)* dated November 20, 2013 and updated March 14, 2014
- Washington State Department of Ecology – Nine (9) Environmental Report Tracking System (ERTS) reports dated from May 2008 to September 2014.
- Washington State Department of Ecology – Toxics Cleanup Program files for Glacier Recycling.
- Washington State Department of Ecology – Water Quality Files for Northwest Wood & Fiber Recovery
- Washington State Department of Ecology – Underground Storage Tank (UST) Files for Playtime Associates¹
- Columbia Environmental, Inc. – *Underground Storage Tank Removal and Independent Remedial Action Site Assessment Report for Property Located at 32300 148th Avenue SE Auburn Washington 98002*, Prepared for Mr. Al Zahnow, Playtime Associates, Dated August 1995
- Farallon Consulting, L.L.C. - *Additional Subsurface Investigation Report - Glacier Recycling Property, 32300 148th Avenue Southeast, Auburn Washington*, dated September 10, 2014

These reports and files document contamination and potential contamination on the Subject Property. Several of the files and reports are summarized below.

2.1 Columbia Environmental, Inc. – UST Removal and Site Assessment Report – August, 1995

The Columbia Environmental Inc. (Columbia Environmental) Report was prepared to document the removal of three (3) USTs at the Site in July 1995 for Playtime Associates. The USTs were 10,000 gallons in size and contained gasoline, diesel fuel and “heavy oil”. According to Columbia Environmental,

- The UST excavation was located just beyond the southwest corner of the existing building
- The tanks appeared in good condition with no holes or indications of leakage in the tank shell
- There were no observed signs of contamination in the soils within the excavation area after the removal of the tanks,

¹ Note: ECI reviewed the UST information on Ecology’s website and found that it is listed under a different address. It is listed under the address of 32222 148th Avenue SE with the Site name as Playtime Associates.

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- A slight odor was noted in the materials taken from the top of Tanks #1 and #3
- Soil samples were collected from the side walls, the bottom of the excavation beneath each of the tanks and the stockpile of soil which had overlaid the USTs ("overburden").
- The overburden soil was returned to the excavation after sampling
- The analytical results of the samples indicated that Diesel-Range Organics (DRO) were present at 210 to 380 mg/kg, which was above the MTCA Method A cleanup levels in effect at the time (200 mg/kg).
- In August 1995, Columbia Environmental returned and excavated approximately 90 cubic yards (cy) of contaminated soil from the location of the former USTs. This soil was stockpiled on-site. Columbia Environmental did not indicate where the soil was disposed of or if it remained on-site and used at the Site.

2.2 Langseth Environmental, Inc. - Phase II Site Investigation Report – December 2013

The Langseth report was prepared for Glacier Recycle to document test pit excavation and sampling that was conducted to determine if petroleum contamination was present on the Property. Sixteen (16) test pits and/or slit trenches were advanced on the Property in December of 2013 (Figure 3, Appendix A). These test pits and trenches were located near the Main Building on the Site in areas that were used for stockpiling construction materials for recycling and near the southern, eastern, and northern Property boundaries.

During excavation concrete "rubble" and debris consisting of burnt wood, bricks, metal, and plastic was observed and it was speculated that a large portion of the Subject Property had been infilled with these materials. According to the Langseth report, the fill material was two (2) to five feet (5) thick in the areas explored. In addition, it was noted by Langseth that "groundwater" was present in the fill materials. Samples of the soil from the test pits / trenches were collected at the interface between the fill material(s) and the native soils and analyzed for petroleum hydrocarbons, Lead, Cadmium, Total Chromium, three (3) samples for Hexavalent Chromium, Arsenic, Mercury, and pH

According to the Langseth report, the analytical results revealed that soil in two (2) separate areas of the Site were contaminated with up to 21,600 mg/kg of Oil-Range Organics (ORO) (Table 5, Appendix B). This is above the Ecology Model Toxic Control Act (MTCA) Method A cleanup level (CULs) of 2,000 mg/kg. The two (2) areas identified were located south of the Main Building and immediately north of the "hoop structure" northeast of the Main Building. In addition, it was noted that the soil samples all had elevated pH measurements that was attributed to the concrete present at the Site.

Based on the results of the investigation, Langseth recommended that additional site investigation and characterization be performed. In addition, he recommended that the owners and/or operators notify Ecology of the results within 90 days as required by the MTCA regulations (WAC 173-340). The Langseth report was submitted to Ecology on March 13, 2014.

2.3 Washington State Department of Ecology - Initial Investigation Field Report – November 2012/revised March 2014

In November of 2012, Ecology performed an “Initial Investigation”² at the Site. This investigation was conducted based on a “...long history of compliance issues under solid waste (SW) handling...” According to Ecology:

“Prior to 2007, the facility operated as a SW (solid waste) permit exempt wood waste recycling facility. Then, in 2007 the facility switched to processing mixed construction and demolition debris and obtained a permit for SW handling. The operation quickly amassed piles of waste, including asphaltic roofing shingles, concrete rubble, painted and treated wood waste, and residuals from construction debris including such materials as wallboard, insulation, vinyl flooring, laminate countertops, wiring, metal and plastic piping, and film plastic.

“These piles were primarily stored on bare soil and left exposed to the elements without any leachate collection or stormwater protection. All stormwater onsite, including runoff from the small concrete pad, infiltrates to ground. This form of storage violates conditions of the solid waste handling standards, WAC 173-350-320...”

Ecology also indicated that Public Health Seattle and King County had been attempting to work with the operators to achieve compliance.

During the investigation, Ecology observed that approximately 20,000 cubic yards (cy) of various waste materials were stored on the Property and that the Property was “...under standing water...” and that the storage piles stood in several inches of water.

Ecology concluded that

- The “...site essentially acted as an above ground landfill...” and
- “...due to the nature of the waste, a wide array of contaminants could have been released to the environment. Both soil and groundwater impacts are possible.”

Ecology also noted in an update to the Initial Investigation Report that Waste Management had ceased operations on the Property and had removed most of the stockpile materials from the Site. However, Ecology was concerned that some of the material might have been incorporated into the soil during surface grading and that there might be an unknown quantity of residual waste in the soil at the Site. The Initial Investigation Report was again modified in March 2014 to reflect receipt of the Langseth report notifying Ecology of the contamination found at the Site.

Based on the Initial Investigation, Ecology determined that the Site should be listed on the “Confirmed and Suspected Contaminated Sites List” (CSCSL) which is a listing of known or suspected contaminated sites maintained by Ecology. This was confirmed in an “Early Notice” letter to both Waste Management

² A brief investigation conducted within 90 days after receiving a site discovery report. This step provides enough information to determine if the site needs further investigation, emergency cleanup, or no further action. If further action is required, early notice letters are sent to site owners, operators, etc., inviting them to work cooperatively with Ecology to resolve the contamination problems.

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and to Glacier Recycle. The initial investigation listed various contaminants that Ecology was concerned about.

These contaminants included:

- Petroleum hydrocarbons,
- Solvents (Halogenated and Non-Halogenated),
- Polynuclear Aromatic Hydrocarbons (PAHs),
- Metals,
- Polychlorinated Biphenyls (PCBs),
- Dioxin/dibenzofuran compounds,
- Corrosive wastes (high or low pH wastes), and
- Other “conventional” organic and inorganic waste.

2.4 Ecology Early Notice Letters

In separate letters dated March 18, 2014 to Glacier Recycle and Waste Management, Ecology notified them that Ecology was listing the Property on the CSCSL. Ecology indicated that further investigation or cleanup action would need to be done to comply with Washington State laws and regulations and urged the Facility to pursue “independent cleanup”. If independent cleanup was not undertaken, then Ecology would assess what action is needed and establish a priority for that work under the formal MTCA cleanup process.

2.5 Farallon Consulting, LLC. - Additional Subsurface Investigation Report – September 2014

In September 2014, Farallon Consulting L.L.C. (Farallon) conducted an “Additional Subsurface Investigation” on the Subject Property for Waste Management. The purpose of investigation was to assess the environmental conditions at the Site, including:

- Identifying potential releases of hazardous substances associated with historical operations;
- Evaluating the potential source(s) of the hazardous substances released if found;
- Estimating the time frame in which a release occurred; and
- Estimating the lateral and vertical distribution of any releases identified.

Based on ECI’s review of the Farallon report, it also appears that Waste Management primarily wanted Farallon to attempt to identify contamination that was present prior to Waste Management leasing the Property.

Farallon report presented a list of storage tanks that were removed from the Site prior to Waste Management leasing the Property. This included:

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- Three (3) 10,000-gallon-capacity underground storage tanks (USTs) formerly located off the southwest corner of the Main Building
- Two (2) aboveground storage tanks (ASTs) that contained diesel fuel for vehicles used at the Site.
- Three (3) 250-gallon-capacity oil storage ASTs formerly located in the easternmost service bay inside the Main Building

Farallon also summarized previous investigations at the Site including the Langseth Investigation in 2013. In addition to the Langseth investigation, a Phase 1 Environmental Site Assessment (ESA) conducted in 2010 by SCS Engineers (SCS) was summarized. This Phase I ESA was not able to be obtained by ECI for review.

That Phase 1 ESA summarized Waste Management's activities at the Site and identified the three (3) underground storage tanks (USTs) removed prior to Glacier operating at the Site and five aboveground storage tanks (ASTs) that were removed prior to when Glacier Recycle discontinued use of the Site. It indicated that the USTs were removed by Columbia Environmental Inc. in 1995 on the behalf of Playtime Associates. According to Farallon, SCS did not know if Playtime Associates was the owner or operator of the Site at the time.

The Phase 1 ESA also identified:

- The presence of residual oil staining on the pavement and surface soil around the asphaltic roof tile stockpiles and in the north bone yard area;
- Poor housekeeping in and outside the maintenance shop associated with oil storage areas, and on the concrete pad south of the service bays, and that
- Glacier operations were cited by various regulatory agencies for issues including but not limited to stormwater compliance, hazardous materials use and/or storage, and dust emissions.

The Farallon investigation consisted of excavating and sampling:

- Two (2) test trenches and three (3) test pits to verify the ORO results from the Langseth Phase II,
- 43 test pits to characterize current Site conditions in areas of concern throughout the Site where historical operations were conducted by Waste Management and others, and
- 17 test pits in the earth berm surrounding the Site to evaluate whether the berm represents a source of contaminants.

To locate the test pits Farallon created a 100-foot by 100-foot grid across the Site. The test pits were then excavated in the grids located north, east, and south of the building on the Property. The test pits were identified by the cell within the grid. Test pitting was not performed west of the building near the former UST removals or in an area near the former "Hog Fuel" storage pile which may have been on concrete. The "Hog Fuel" was made by grinding up the wood received at the Site. This wood included raw wood as well as painted and treated wood. Figure 3 in Appendix A presents the location of the

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Farallon test pits. The analytical results from the Farallon investigation are presented in Table 5, Appendix B.

The samples collected were analyzed for DRO and ORO. Some samples were also analyzed for Gasoline-Range Organics (GRO), PAHs, metals, and Volatile Organic Constituents (VOCs). The analytical results indicated that various portions of the Site were contaminated with ORO, carcinogenic PAHs (cPAHs), Arsenic and Cadmium above the MTCA Method A CULs. These areas were primarily the areas identified by Langseth and in areas east and southeast of the concrete paved area adjacent to the building.

In addition, the berms along the south, east and northeast Property boundaries contained contaminants above the MTCA cleanup levels. According to Farallon the berms consist of a mixture of silt, sand, gravel, and organic material; and debris fill such as Styrofoam, plastic bottles, wood chips, fabric, and metals. It should be noted that Farallon primarily sampled the native soil beneath the fill material at the Site and with a couple of exceptions not the fill material.

According to Farallon, ground water was not encountered at the depths explored (nine [9] to ten [10] feet below the ground surface [bgs]). Farallon also noted that groundwater was not encountered to a depth of 14 feet bgs when the USTs were excavated by Columbia Environmental in 1995 or when Langseth investigated the Site.

ECI's review of the test pit logs from Farallon test pits at the Site revealed that "perched water" was entering the test pits in the northern trench from a depth of approximately eight (8) to nine (9) feet bgs. The remaining test pits and trenches did not explore deeper than eight (8) feet bgs and several of the logs noted that at eight (8) feet bgs some of the soils were moist.

ECI also observed that while the Columbia Environmental UST Site assessment report did not mention groundwater in the text of the report, the "Site Assessment Checklist" submitted to Ecology indicated that groundwater was encountered in the excavation. This checklist only requires yes or no answers so the depth of the water was not noted. It should also be noted that Langseth specifically reported that water was found in the fill material and that the Site was covered in water when Ecology visited in 2012.

ECI observed during the document review for this RI that the Farallon investigation and the Columbia Environmental UST removals occurred at the end of the summer season, September and August, respectively. The Langseth Investigation and the Ecology Inspection occurred during the winter months which are typically the rainy season February and November, respectively. It appears that there may be a seasonally perched groundwater in portions of the Site at depths of greater than eight (8) to nine (9) feet bgs. This "perched water" would be considered leachate through the fill material at the Site. Farallon indicated that they were specifically asked by Waste Management not to find groundwater because Waste Management was concerned about potentially cross-contaminating the groundwater by dragging contaminants from the soils into the groundwater below.

In addition to identifying the areas of contamination, Farallon attempted to identify the types of ORO and determine its age based on weathering. In general, this was not successful.

Farallon concluded that:

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- *“DRO, ORO, the total cPAH Toxicity Equivalence (TEQ), arsenic, and cadmium were detected at concentrations exceeding MTCA Method A cleanup levels in soil samples collected.”*
- *“The vertical distribution appears to be limited to depths of less than or equal to five (5) feet bgs where the vertical distribution of the contaminants of concern (COCs) was established during this investigation, with the exception of one (1) location where the COCs were detected at 8.5 feet bgs.”*
- *“Based on the limited vertical extent of the releases and the primary COCs being oil and/or metals, it appears unlikely that groundwater beneath the Site has been impacted by COCs.”*

Farallon also identified several data gaps remaining after the investigations. They were that:

- *“The extent of the COC in the soils in four areas was not completely delineated because of the concrete pad surrounding the building”,*
- *“That the extent of contamination near the property boundary in three (3) locations was not delineated because of the berm or trees near the property boundary”, and*
- *“That the vertical extent of contamination was not delineated in two locations”.*

3.0 GEOLOGY AND HYDROGEOLOGY

3.1 Geology

The Site is underlain by fill material consisting primarily of crushed recycled concrete and other recyclable debris such as bricks, and polished rock slabs from the ground surface to depths ranging from 0 to 11 feet bgs.

The geology in the vicinity of the Site consists of alluvial silt, sand, and gravel from depths ranging from 0.3 foot to 10 feet bgs deposited in streambeds and alluvial fans overlying glacial till deposited during the Vashon Stage of the Upper Pleistocene Fraser Glaciation (Walsh et al. 1987). The glacial till consists of an unsorted, unstratified, highly compacted mixture of clay, silt, sand, and gravel deposited directly by glacial ice, and locally contains outwash sand and gravel.

Based on observations made during drilling and test pit excavation at the Site, it appears that there is between two and ten (10) feet of fill at the Site and then silty sand to a depth of ten (10) to twelve (12) feet bgs. Below the silty sand there is sandy gravel to a depth of approximately 25 feet bgs and then silty sand to sandy silt to a depth of approximately 45 feet bgs. From approximately 45 feet bgs to the total depth explored at the Site (50 feet bgs) and then there is clayey silt till.

The topography of the Site is relatively flat with an elevation change of less than two feet across the entire 22 acres except for the berms on the eastern, northeastern, and southern property boundaries. Regional topography in the vicinity of the Site slopes down to the north-northwest. A large ravine is located immediately north of the Subject Site. Big Soos Creek is approximately 0.35 mile north of the Site.

3.2 Hydrogeology

Based on the information obtained during drilling at the Site, the depth to the shallow regional groundwater aquifer at the Site is approximately 45 feet bgs. Based on water levels in the newly completed monitoring wells at the Site, the groundwater flow direction appears to be towards Big Soos Creek approximately ¼ mile to the north of the Site and varies from the north-northeast in February 2018 to the northwest in May 2018 (Figures 4 and 5, Appendix A).

According to Farallon, ground water was not encountered at the depths explored nine (9) to ten (10) feet bgs). However, ECI's review of the logs from Farallon test pits at the Site revealed that "perched water" was entering the test pits in the northern trench from a depth of approximately eight (8) to nine (9) feet bgs. ECI also observed that while the Columbia Environmental UST Site assessment report did not mention groundwater in the text of the report, the "Site Assessment Checklist" submitted to Ecology indicated that groundwater was encountered in the UST excavation which was approximately 14 feet deep. In addition, the previous investigation by Langseth Environmental Services, Inc. noted that groundwater was encountered within the fill material near the "tipping area which was located northeast of the Main Building. Ecology noted in their Initial Investigation that the Site was "covered in water".

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During excavation and drilling conducted during this RI investigation, ECI observed water occurring at the base of the fill at depths of three (3) to eight (8) feet bgs in several locations. This water appears to be localized as it was not encountered in all locations investigated. In, addition a thin zone of water approximately 12 inches thick was encountered at a depth of approximately 28 feet bgs in the boring of one of the newly installed monitoring wells

The Farallon investigation and the Columbia Environmental UST removals occurred at the end of the summer season, September and August, respectively. The Langseth Investigation the Ecology Inspection, and this RI investigation occurred during the winter months which are typically the rainy season, February and November, respectively. It appears that there potentially may be seasonal perched groundwater at the Site.

4.0 SITE CHARACTERIZATION

Based on ECI's review of the information from previous investigations conducted at the Site and our experience working with Ecology on similar sites, ECI performed additional work to identify and characterize the contamination at the Site. The scope of work for this characterization was broken down into different Tasks. The scope of work for this was:

4.1 Task 1 – Regulatory File and Document Review

ECI requested all available records from Ecology and the King County including the Department of Public Health (Health Department). The purpose of the records review was to attempt to determine current and historical concerns that Ecology and the Health Department have regarding the Site so that they may be addressed as the RI proceeded.

The Site has operated under a variety of environmental regulations and programs within Ecology and the Health Department. These programs and regulations include:

- The Solid Waste (SW) Handling Standards (WAC 173-350) as administered by Ecology and the Health Department. Ecology has delegated the primary administration of the SW Handling Standards to the local health departments. Therefore, the majority of the interactions with the Site have been with the County Health Department. The Facility operated under a SW Permit exemption for wood waste recycling prior to 2007. After 2007, the Facility obtained a permit from the Health Department for processing mixed construction and demolition debris. These regulations have requirements that need to be met when remediating and/or closing a facility.

According to the Ecology Initial Investigation, the Site has a *"long history of compliance issues"* under the SW Handling Standards. The Ecology Initial Investigating indicates that Ecology's records include site inspections from Public Health Seattle and King County for the period of 2008 through the present while they attempted to work with the operators to achieve compliance. One issue identified by Ecology was that all stormwater onsite, including runoff from the "small" concrete pad, infiltrates to ground. This infiltration could potentially carry contaminants to the groundwater.

- The Underground Storage Tank Regulations (WAC 173-360). These regulations have specific requirements for sampling and report when decommissioning a UST.
- The Model Toxics Control Act (WAC 173-340). These are the cleanup regulations administered by Ecology and are the primary regulations that will govern regulatory closure of the Subject Site.

As previously noted, ECI reviewed the Ecology Toxics Cleanup Program (TCP), Water Quality (WQ) Program, and UST Program files for the Site during preparation of the scope of work for this RI. ECI also talked to personnel from the TCP program and Solid Waste Program (now called Waste 2 Resources Program).

The TCP program indicated that the Site was listed as a contaminated site but that until the Site was in the Voluntary Cleanup Program (VCP) or under an administrative order, they could not discuss the Site or give advice. The Waste 2 Resources Program inspector indicated that the program was concerned because the Site had more than just concrete, asphalt shingles and wood. The inspector also indicated that other than the concrete (except for the concrete fines), they did not consider the waste at the Site to be inert and that it *“did not meet the regulatory definition of inert waste”*. As a result, they were concerned about the potential to contaminate the soil and groundwater.

The inspector also indicated that precipitation that fell on the Site accumulated like *“bath tub”* and drained slowly downwards and also to a catch basin in one of the stormwater retention ponds. She did not know where the catch basin discharged. ECI believes that the discharge for this catch basin was to the ravine to the north and ultimately to Big Soos Creek. It appears that the discharge was permitted under an “Industrial Stormwater Discharge Permit” maintained by the Site and issued by the Ecology WQ program.

The inspector indicated that the Waste 2 Resources Program currently does not have regulatory authority over the Site because it is now a TCP Program Site and that the TCP Program will work with the owners to clean up and close the Site.

The concerns identified during the records review and discussions with Ecology personnel was incorporated into the scope of work for the RI.

King County responded and

- Indicated that the King County Health Department had a “box of physical files that were available for review in their offices,
- Indicated that the Department of Permitting and Environmental Review had a 1995 Permit on “microfilm”, and
- Sent ECI a “flash drive” containing approximately 176 electronic files (mostly e-mail) from the Department of Health.

ECI reviewed the files on the “flash drive” and talked to the former inspector for the Site. The files on the flash drive did not reveal any additional concerns that had not already been identified. However, they did allow ECI to find the former inspector for the Site. ECI talked to the inspector who indicated that the County had similar concerns as those of Ecology regarding the potential contamination of groundwater. However, since the Site no longer has a solid waste permit, the county does not have any regulatory authority over it.

4.2 Task 2 – Data Gap Identification and Contaminants of Concern

4.2.1 Data Gaps

This task was an ongoing task throughout the RI. Some data gaps had already been identified based on the Farallon, Langseth and Columbia Environmental reports along with information contained within the Ecology records. These data gaps are summarized below. As the RI proceeded modifications were

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made to the identified data gaps. Those data gaps were filled either by an additional test pit/boring or additional chemical analysis of a soil or groundwater sample. The following data gaps are described below.

The following data gaps were identified by Farallon. These data gaps existed primarily because of the concrete pad that is present around the Main Building at the Site or the trees near the berms surrounding the Property (Figure 3, Appendix A).

- The extent of ORO and cPAHs in soil in an area near the southeast corner of the Main Building. North of Farallon's test pit E7. ECI addressed this data gap by placing a boring in this area and collection soil samples for analysis.
- The extent of ORO in soil in the area north of the hoop structure in the "tipping area" south of Farallon's test pit F3. ECI addressed this data gap by placing a boring in this area and collecting soil samples for analysis.
- The extent of ORO and cPAHs in soil between the "tipping area" and the northern trench excavated by Farallon. ECI addressed this data gap by placing a boring in this area and collecting soil samples for analysis.
- The extent of DRO, ORO, and cPAHs in soil in the southern portion of the Site near Farallon's southern trench. ECI addressed this data gap by placing a test pit in this area and collecting soil samples for analysis.
- The extent of cPAHs in soil west of Farallon's test pit TP-7-W in the southern portion of the Property has not been determined due to trees that restrict access to the west. This data gap was not able to be addressed because of the trees. ECI excavated a test pit as close as possible to the area,
- The vertical extent of ORO in soil at Farallon's test pits G6 and G8 southeast of the concrete pad surrounding the main build, at depths below 8.5 and 1.5 bgs, respectively, has not been determined. This data gap was partially addressed by excavating a test pit in each area and sampling both the fill and the native soil in those areas.
- The extent of ORO, cPAHs, and arsenic in soil in the southeastern portion of the Site east of Farallon's test pits I6 and I7 has not been determined due to the earth berm, which restricts access to the south and east. This data gap was not able to be addressed because of the berms. ECI was concerned that any excavation or drilling in this area would compromise the integrity of the berms.

Because Farallon's scope of work was to identify potential impact from Waste Management's activities at the Site, there were several areas that were not investigated. ECI identified the following data gaps in fully characterizing the Subject Property and addressed them in this RI investigation.

- The area near the former USTs west of the Main Building was not investigated to determine if the UST's were properly decommissioned and all of the contaminated soil was removed to below the MTCA cleanup levels. This was addressed in this RI investigation by advancing a boring in this area and collecting soils for analysis.

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- The areas near the former aboveground storage tank (AST) fueling areas both near the northwest corner of the Main Building and east of the Main Building have not been assessed to determine if there was impact from those activities. ECI addressed this data gap by placing a borings in both of these areas and collecting soil samples for analysis.
- The area near the former oil and waste oil ASTs in the easternmost service bay of the Main Building. Inspection of this area by ECI did not reveal evidence that would cause this area to be of further concern.
- The area near the Wood Hog Fuel area. This area could have wood treating chemicals such as pentachlorophenol, metals (trivalent chromium, hexavalent chromium, arsenic, and copper, in addition to ORO. ECI addressed this data gap by placing a boring in this area and collection soil samples for analysis.
- ECI has also observed that many of the analyticals from the previous Farallon investigation sampled only the native soil beneath the fill and did not sample the fill itself. Therefore, some areas identified as not contaminated may actually have contaminated fill. ECI sampled both the fill and the native soil in the test pits and soil borings for this RI investigation.
- Groundwater had not been sampled at the Site. As previously mentioned, the shallow aquifer was anticipated to be located at depths of 20 to 50 feet bgs and that there may be seasonally perched groundwater at the Site at depths between eight (8) and nine (9) feet bgs. ECI addressed this data gap by sampling the perched water found in one of the soil borings. (Perched water was observed in only one boring and one test pit.) ECI also installed three (3) groundwater monitoring wells in the upper aquifer beneath the Site.
- In Ecology's Initial Investigation they identified potential COCs. Those COCs included the ORO, GRO, cPAHs, and metals addressed in previous investigations. However, additional COCs were identified that were not addressed in previous investigations. These COCs included:
 - Polychlorinated Biphenyls (PCBs) in soil,
 - Dioxin/dibenzofuran compounds in soil,
 - "Organic conventional contaminants" in soil and groundwater (Unspecified organic matter that imposes an oxygen demand during its decomposition [Example: Total Organic Carbon]),
 - "Inorganic conventional contaminants" in soil and groundwater (Non-metallic inorganic substances or indicator parameters that may indicate the existence of contamination if present at unusual levels [Examples: Sulfides, sulfate, and ammonia]),
 - "Other deleterious substances" in soil (Other contaminants or substances that cause subtle or unexpected harm to sediments [Examples: Wood debris; garbage (e.g., dumped in sediments)]).

- Corrosive Wastes in soil (Corrosive wastes are acidic or alkaline (basic) wastes that can readily corrode or dissolve materials they come into contact with.) Because the Site is filled with concrete debris there is the possibility that the pH of the soil and groundwater at the Site may be high enough to cause concern.

Because these compounds were identified in Ecology's Initial Investigation and are listed as being "suspected" present, they were addressed by performing additional analyses on the samples collected or referring to analyses previously performed by Farallon or Langseth.

4.2.2 Contaminants of Concern

Contaminants of Concern in Soil

Based on review of previous investigations, ECI's identified the primary contaminants of concern (COCs) in the soil. Not all of these COCs were analyzed for in every sample analyzed during this RI. Some of the COCs could be ruled out from association with other contaminants (association with COCs that are not present). ECI initially had the soil samples collected analyzed for select COCs. If any of the COCs that were indicative of other COCs were detected above the laboratory reporting limits, then the ECI evaluated the need to analyze for those additional COCs in select areas. The only contaminant that was added to the analyses was hexavalent chromium in several locations where the total chromium analysis results were above the MTCA Method A CUL for hexavalent chromium.

The following table lists the COCs identified for soil.

Table 1: Constituents of Concern in Soil

Contaminant of Concern (COCs)
Gasoline Range Organics
Diesel Range Organics (DRO)
Oil Range Organics (ORO)
cPAHs
Arsenic
Cadmium
PCB Mixtures
Chromium (Trivalent)
Chromium (hexavalent)
Lead
Mercury
Organic Conventional Contaminants
Inorganic Conventional Contaminants (i.e. Sulfate)
Corrosive Wastes in soil (pH)
Dioxin/dibenzofuran compounds

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Contaminants of Concern in Groundwater

The contaminants of concern identified for the soils are also of concern in groundwater. In addition, because Ecology is concerned about potential leachate from the Site reaching groundwater, there are specific contaminants that could potentially leach from Construction and Demolition debris sites that are of concern. The initial COCs in groundwater until proven not to be present are presented in the Table 2 below:

Table 2: Constituents of Concern in Groundwater

Contaminant of Concern (COCs)
Gasoline Range Organics
Diesel Range Organics (DRO)
Oil Range Organics (ORO)
cPAHs
Phthalates
Arsenic
Cadmium
Lead
Chromium (Trivalent)
Chromium (hexavalent)
Mercury
Manganese
Copper
Zinc
Total Dissolved Solids
Inorganic Conventional Contaminants (i.e. Sulfate, Sulfide)
pH

4.3 Task 3 – Field Investigation

4.3.1 Underground Utility Locating/Limited Geophysical Survey

Prior to site activities, ECI submitted a public utility locate request to the Washington Utility Notification Center. ECI also utilized a private utility locating service, Mountain View Locating of Bonney Lake Washington, to complete a thorough non-invasive geophysical survey of the Property, using electromagnetic survey techniques to identify any utilities not included in the public locate request and “clear” each boring/test pit location/well.

4.3.2 Test Pits

On January 24, 2018, ECI excavated eight (8) test pits in strategic locations on the Property to fill a data gap that had been previously identified (Figure 3, Appendix A). Several of the test pits were located where Farallon had previously excavated but had not defined the depth of the fill material, had not sampled the fill material, or had not sampled the native soils. For ease of location and for consistency, the test pits were identified using the same sampling grid developed and used by Farallon during their investigations.

Each test pit was excavated to depths of four (4) to ten (10) feet bgs using a Bobcat E50 track mounted “mini-excavator” operated by an ECI environmental technician. At each test pit location, the soil characteristics were logged during the excavation and two (2) soil samples were collected from each test pit. One (1) soil sample was collected from the soil identified as ‘fill’ and the second from the soil identified as “native”. A total of sixteen (16) soil samples were collected from the eight (8) test pits. The locations of the test pits are presented on Figure 3 in Appendix A. The test pit logs are presented in Appendix C.

Prior to sampling each sample was field-screened utilizing olfactory, soil staining, sheen testing and a photoionization detector (PID). The samples were collected from the excavator bucket by first obtaining a fresh bucket of soil and then using industry standard sampling methods, collecting the sample from the center of the bucket to prevent potential contamination from the bucket. Samples collected for volatile organic constituents were collected using EPA sampling method 5035A.

Samples were transferred into new laboratory-provided analyte specific sample containers and assigned a unique sample ID which consisted of the test pit number, the depth of the sample, and whether the sample was fill material or native soil. Samples that were located in the same area as a previous test pit had the letter “A” added right after the test pit number.

For example, a sample collected of the fill material at a depth of 4 feet bgs from test pit grid location “G6” which had previously been test pitted was labeled as “Sample G6A-4-F”. A sample of the native soil at a depth of 10 feet bgs in the same test pit was labeled as “Sample G6A-10-N”.

The soil samples were placed in a climate-controlled container and maintained at or below 4° Celsius until they were delivered to an Ecology accredited laboratory, Friedman and Bruya, of Seattle, Washington, under industry standard chain of custody protocol. The samples were analyzed for the

primary COCs identified for the Site, DRO, ORO, semi-volatile organic compounds (SVOCs), arsenic, cadmium, chromium, lead and mercury (MTCA 5 metals) and pH.

4.3.3 Soil Borings

On January 26, 2018, Standard Environmental Probe of Tumwater, Washington, advanced twelve (12) borings at the Site using direct push drilling techniques under the supervision of an ECI environmental professional. The soil borings were located in areas of data gaps that were not previously investigated because the surface was covered with concrete or areas that had the potential to be contaminated but were not considered of concern by Farallon and Waste Management (Figure 3, Appendix A).

Except for boring C6 and C7, the borings were advanced to a depth of approximately eight (8) feet bgs. Borings C6 and C7, located in the area of the former USTs at the Site, were advanced to depths of twelve (12) and sixteen (16) feet bgs, respectively. During drilling each boring was logged by an ECI professional for lithology and the soils field-screened for evidence of contamination. Based on the field screening, two (2) samples were collected from each boring for analysis. One sample was collected of the fill material, if encountered, and one sample was collected of the native soil. If fill material was not encountered, two (2) samples of the native material were collected (one (1) shallow sample and one (1) deeper sample near the bottom of the boring. Like the test pit samples, the samples from the borings were labeled with the boring identification the depth and if the sample contain fill or native soil. The boring logs for the borings are presented in Appendix C.

At each sampling location, a two-inch diameter, four-foot long stainless-steel push-probe fitted with a four-foot long single-use (disposable) acetate liner was advanced. Relatively undisturbed soil samples were collected directly from the acetate liner extracted from the borings. Samples were transferred into new laboratory-provided analyte specific sample containers and assigned a unique sample ID; those samples collected for volatile organic compounds (VOCs) were collected using the EPA sampling Method 5035A.

The soil samples were placed in a climate-controlled container and maintained at or below 4° Celsius until they were delivered to an Ecology accredited laboratory, Friedman and Bruya, of Seattle, Washington, under industry standard chain of custody protocol. The samples were analyzed for the primary COCs identified for the Site, DRO, ORO, semi-volatile organic compounds (SVOCs), arsenic, cadmium, chromium, lead and mercury (MTCA 5 metals) and pH.

Groundwater was encountered at the base of the fill material in one of the soil borings (boring C5) at a depth of approximately nine (9) feet bgs. A sample of the water was collected for analysis of the COCs identified for groundwater.

To sample the groundwater in soil boring C5, a four-foot long temporary 1-inch diameter PVC screen was placed in the boring. Single-use polyethylene tubing was placed in the screen and the temporary well was purged using a peristaltic pump following EPA and Ecology low-flow purging and sampling methods. The well was purged until the water was relatively sediment free before collecting the water sample. The water sample was collected in new laboratory-provided analyte specific sample containers

and assigned a unique sample ID. The sample number consisted of the boring location followed by the designation "GW" for groundwater.

4.3.4 Groundwater Monitoring Well Installation

On February 1 through 2, 2018, ECI oversaw the drilling and installation of three (3) groundwater monitoring wells. Two (2) of the wells are located in the northern portion of the Site in the anticipated downgradient direction of groundwater flow. The third well is located in the southeastern portion of the Site in an anticipated upgradient direction (Figures 4 and 5, Appendix A).

The wells were drilled using a hollow-stemmed auger operated by Holocene Drilling, a Washington State licensed driller. During drilling, soil samples were collected logging lithology every five (5) feet using a standard split-spoon sampler. The soil type primarily consisted gravel to a depth of approximately 28 feet bgs when silty sand was encountered. At approximately 28 feet bgs in the boring for monitoring well MW1, located in the northwest portion of the Site, a thin 1-foot thick zone of wet soil was encountered but there was not enough water in this zone to sample. Well MW2 in the northeastern portion of the Site did not have the zone of wet soil at this depth. Well MW3 located in the southeast portion of the Site was drilled to a depth of 30 feet bgs. At this location, water was encountered at a depth of 21 to 24 feet bgs. Because the wells were constructed in areas of the Site that were not anticipated to be contaminated the soil cuttings were spread on the surface near the wells.

At each location, the well was drilled to depth with a 4½ - inch diameter hollow-stemmed auger. Upon reached the total depth of the boring, a 2-inch diameter PVC well casing with ten (10) feet of 0.010-inch slotted well screen was placed in the boring. The annulus around the well screen to approximately two (2) feet above the top of the well screen was filled with 10-20 Colorado Silica Sand (sandpack). Above the sandpack one (1) foot of hydrated bentonite chips were placed followed by bentonite slurry to within 4 feet of the ground surface. The well was then completed with another two feet of bentonite chips and a 6 inch monument casing cemented into the ground. The steel monument has a stick-up of approximately 4 feet above the ground surface. To protect the wells three 4-inch steel bollards were placed around the wells. The boring logs and well completion diagrams are presented in Appendix C

Once the wells were installed, each well was developed to remove the effects of drilling and ensure effective connection with the aquifer. Well development consisted pumping the wells until the discharge water was clear of entrained sediment. Approximately 30 to 50 gallons of water were pumped into drums during well development. The full drums were placed near the building for storage until proper disposal can be determined.

4.3.5 Monitoring Well Survey

On March 7, 2018, ECI received the results from a survey conducted by Butler Surveying of Chehalis Washington to accurately locate the vertical and horizontal locations of the monitoring wells at the Site. The horizontal and vertical control for the survey were established using static and Real Time Kinematic positioning from satellite-based positioning systems (global navigation satellite systems) (Static / RTK GNSS). The horizontal positions were reported referenced to the Washington Coordinate System North (State Plane North) and the 2011 adjusted 1983 North American horizontal datum (NAD83/11) (latitude

and Longitude). The vertical positions were referenced to the 1988 North American Vertical Datum (NAVD88). A closed level loop was used to locate to the nearest one hundredth of a foot:

- The top center of the monument casing
- The north rim of the monument casing
- The north rim of the PVC well casing, and
- The ground surface on the north side of the well.

The survey results are shown in Table 7, Appendix B.

4.3.6 Quarterly Groundwater Monitoring

On February 5, 2018 and May 7, 2018, ECI returned to the Site to perform quarterly groundwater monitoring at previously installed groundwater monitoring wells (MW1 – MW3). ECI utilized EPA recommended industry standard low-flow sampling methodology to collect three (3) groundwater samples during each monitoring event.

Prior to purging and sampling, the cap from the monitoring well was removed and the groundwater level was allowed to equilibrate to atmospheric pressure. The depth to groundwater in the monitoring well was then measured relative to the top of the well casing using an electronic water-level meter. The depth to water and the elevations of the water table are presented in Table 7, Appendix B.

The wells were purged using a stainless steel ‘Hurricane’ submersible pump at a rate that did not exceed 150 ml a minute. During purging field parameters of temperature, pH, conductivity, turbidity dissolved oxygen and oxygen reducing potential were measured using a multi-parameter water quality meter and a flow-through-cell. Once the field parameters stabilized, samples were collected in laboratory provided analyte specific sample containers. Based on field observations, the purged groundwater from all three (3) monitoring wells did not have a visible sheen or a detectable odor while performing the standard field activities.

The groundwater samples were placed in a climate-controlled container and maintained at or below 4° Celsius until they were delivered to an Ecology accredited laboratory, Friedman and Bruya, of Seattle, Washington, under industry standard chain of custody protocol to be analyzed for the identified COCs.

4.3.7 Additional Test Pits and Sampling

Based on the analytical results of the January 24, 2018 test pit and soil boring samples discussed in the next section, ECI excavated additional test pits to:

- Further delineated the extent of petroleum hydrocarbon and PAH contamination in the southeastern portion of the Site and
- Obtain samples for analysis by the Ecology analytical method for extractable and volatile petroleum hydrocarbons (EPH and VPH).

ECI excavated five (5) additional test pits at the Site and collected samples from four (4). The test pits were excavated grids E8, F6, H5, and H7. An exploratory test pit was excavated in grid H5 to see if there

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were any changes in the nature of the fill material to the east. Significant changes were not observed and therefore samples were not collected from this test pit.

The test pits were excavated in a similar manner as the test pits ECI excavated in January 2018. The test pits were excavated using a track mounted “mini-excavator” operated by an ECI environmental technician. At each test pit location, the soil characteristics were logged during the excavation. The test pits ranged in depth between three (3) and seven (7) feet bgs.

The test in grids F6 and H7 were to further define the extent of petroleum and PAH contamination in the vicinity of those locations. They were excavated to the base of the fill material and samples collected of both the fill material and the native soil. The samples were analyzed for the primary COCs identified for the Site, DRO, ORO, arsenic, cadmium, chromium, lead and mercury (MTCA 5 metals), cPAHs and pH.

The test pits on grids E8 and H5 were to collect samples for EPH and VPH analyses because they were areas with the highest DRO/ORO concentrations during previous investigations. These test pits were excavated to a depth of three (3) feet bgs and one sample of the fill material was collected from each of the test pits. The samples were analyzed for DRO, ORO, arsenic, cadmium, chromium, lead and mercury (MTCA 5 metals), pH, EPH, VPH and cPAHs in the sample from the test pit in grid E8.

5.0 ANALYTICAL RESULTS

5.1 Test Pit Results

The analytical results of the soil samples from the test pits are summarized below by test pit. Because of the high level of organic material at the Site, all samples for DRO and ORO were extracted using a silica gel cleanup method to remove interference of the organic material not associated with DRO and ORO. The analytical results are presented in Table 5, Appendix B. The Laboratory datasheets for the analyses are presented in Appendix D.

Test Pit G2A:

This test pit was excavated because roofing shingles had been observed in this area and PAHs had not been analyzed for in previous sampling. At this location, the fill consisting of concrete debris, burnt wood and a few roofing shingles near the surface was approximately four (4) feet thick.

Analytical results of samples from test pit G2A indicated:

- DRO and ORO were detected in the fill material **below** the MTCA Method A cleanup levels in fill material and was not detected in the native soil,
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However since hexavalent chromium was not detected chromium is **not considered a concern** at this location,
- PAHs were **not detected** in the samples of the fill and native material analyzed, and
- pH of the samples collected were 7.2 and 7.7 for the fill and native soils respectively. These are higher than what is generally found in Washington State but are still in the neutral range. The pH is likely from the concrete material used for fill.

Test Pit H3A:

This test pit was excavated because roofing shingles had been observed in this area and PAHs had not been analyzed for in previous sampling. At this location, the fill consisting of concrete debris, burnt wood and a few roofing shingles near the surface was approximately four (4) feet thick.

Analytical results of samples from test pit H3A indicated:

- ORO was present in the fill material **below** the MTCA Method A cleanup levels in the fill material and was **not detected** in the native soil.
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium.

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However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location.

- The cPAHs chrysene and benzo(b)fluoranthene were detected in the fill material but were **below** the individual MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene. PAHs were **not detected** in the native soil.
- pH of the samples collected were 8.3 and 8.2 for the fill and native soils respectively.

Test Pit H4A:

This test pit was excavated because roofing shingles had been observed in this area and PAHs had not been analyzed for in previous sampling. At this location, the fill consisting of concrete debris, burnt wood and a few roofing shingles near the surface was approximately three (3) feet thick.

Analytical results of samples from test pit H4A indicated:

- DRO and ORO was detected in the fill material **below** the MTCA Method A cleanup levels in fill material and **was not detected** in the native soil,
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- Total chromium was found in the fill material **above** the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location,
- The cPAH chrysene was detected in the fill material but was **below** the individual MTCA Method B cleanup level and was **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene. PAHs were **not detected** in the native soil.
- pH of the samples collected were 10 and 8.2 for the fill and native soils respectively. The pH is likely from the concrete material used for fill.

Test Pit H5A:

This test pit was excavated to compare the findings of Farallon with those of ECI and because the pH had not been determined in that area. At this location, the fill material consisted of concrete debris along with very dark burnt wood fragments. The fill in this area emitted a very strong hydrogen sulfide (rotten egg) type of odor as well as a petroleum odor. The hydrogen sulfide odor may be a result of drywall material buried at or near this this location.

Analytical results of samples from test pit H5A indicated:

- DRO and ORO was detected in the fill material significantly **above** the MTCA Method A cleanup levels in fill material and **was not detected** in the native soil,
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,

- Cadmium was detected in the fill material **below** the MTCA Method A cleanup level in the fill material and was **not detected** in the native soil,
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location,
- Non-carcinogenic PAHs **were detected** in the sample of the fill material at this location. With the exception of naphthalene, they were detected **below** the respective MTCA Method A cleanup levels. Naphthalene was detected significantly **above** the MTCA Method A cleanup level in the fill at this location.
- All of the cPAHs were detected in the sample of the fill material in this location. With the exception of chrysene, all of the cPAHs were **above** their respective MTCA Method B cleanup levels and were significantly **above** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene.
- PAHs were detected **below** their respective MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene in the native soil.
- pH of the samples collected were 7.8 and 8.1 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit G6A:

This test pit was excavated to determine the thickness of the fill at this location. Farallon indicated that they had not determined the base of the fill when they excavated in this location. The fill in this location consisted of primarily concrete debris with some wood fragments. Farallon indicated that they excavated to a depth of 8½ feet bgs and had not found the base of the fill material at this location. ECI excavated in the same area and found the base of the fill material to be at approximately 7 feet bgs. This difference is likely a result of not being in the exact location of the Farallon test pit G6 and because the fill material across the site is very heterogeneous and highly variable in thickness.

Analytical results of samples from test pit G6A indicated:

- ORO was present in the fill material **below** the MTCA Method A cleanup levels in the fill material and was **not detected** in the native soil,
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location.

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- The cPAHs chrysene and benzo(b)fluoranthene were detected in the fill material but were **below** the individual MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene. PAHs were **not detected** in the native soil.
- pH of the samples collected were 8.3 and 8.2 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit G8A:

This test pit was excavated to determine the thickness of the fill at this location. When Farallon originally excavated in this area, they excavated to a depth of 1½ feet bgs because at the time of the excavation they were not determining fill thickness. They identified this as a data gap in their September 2014 report.

ECI found that the thickness of the fill at this location is approximately four (4) feet thick at this location and consists of concrete debris.

Analytical results of samples from test pit G8A indicated:

- ORO was present in the fill material **below** the MTCA Method A cleanup levels in the fill material and was **not detected** in the native soil.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- PAHs were **not detected** in the samples of the fill and native material analyzed, and
- pH of the samples collected were 7.8 and 7.6 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit E9A:

This test pit was excavated to further define the extent of petroleum contamination found by Farallon in this area of the site. This was a data gap identified by Farallon in their September 2014 report. ECI found that the fill in this area consisted of concrete debris approximately 2 feet thick.

Analytical results of samples from test pit E9A indicated:

- DRO and ORO were **not detected** in the fill material or in the native soil.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- PAHs were **not detected** in the samples of the fill and native material analyzed, and
- pH of the samples collected were 7.6 and 7.8 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit D9A:

This test pit was excavated to further define the extent of petroleum contamination found by Farallon in this area of the site. This was a data gap identified by Farallon in their September 2014 report. ECI found that the fill in this area consisted of concrete debris approximately 2 feet thick.

Analytical results of samples from test pit D9A indicated:

- DRO and ORO were detected in the fill material significantly **above** the MTCA Method A cleanup levels in fill material. ORO was detected **below** the MTCA Method A cleanup level in the native soil,
- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location.
- PAHs were **not detected** in the samples of the fill and native material analyzed, and
- pH of the samples collected were 7.5 and 7.6 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

5.2 Soil Boring Results

The analytical results of the soil samples from the soil borings are summarized below by boring. Because of the high level of organic material at the Site, all samples for DRO and ORO were extracted using a silica gel cleanup method to remove interference of the organic material not associated with DRO and ORO. The analytical results are presented in Table 6, Appendix B. The Laboratory datasheets for the analyses are presented in Appendix D.

Soil Boring C7

This boring was located adjacent to the southeast corner of the area that formerly contained USTs. It was drill to a depth of sixteen (16) feet bgs to sample the soil beneath the anticipated depth of the former USTs. Samples were collected at depths of twelve (12) and sixteen (16) feet bgs. This area did not contain concrete debris fill as did the rest of the Site.

Analytical results of samples from soil boring C7 indicated:

- ORO was detected **below** the MTCA Method A cleanup level in the sample obtained from a depth of sixteen (16) feet bgs. The sample collected at a depth of twelve (12) feet bgs did not detect ORO. This indicates that the sample at twelve feet bgs was likely in the backfill material from the UST excavation.
- DRO was **not detected** in either sample collected from the boring.
- Arsenic, chromium, and lead were detected significantly **below** the MTCA Method A cleanup levels in the samples from this boring.

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- In the sample collected from a depth of twelve (12) feet bgs, the non-carcinogenic PAH pyrene was detected significantly **below** the MTCA Method B cleanup level. Carcinogenic PAHs were **not detected** in the sample from twelve (12) feet bgs.
- The sample collected from a depth of sixteen (16) feet bgs contained the non-carcinogenic PAHs Fluoranthene and pyrene, significantly **below** the MTCA Method B cleanup levels.
- The cPAHs chrysene and benzo(b)fluoranthene were detected the sample collected from a depth of sixteen (16) feet bgs at this location but were **below** the individual MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene.
- pH of the samples collected were 7.7 and 7.7 in the samples from twelve (12) and sixteen (16) feet bgs respectively. The higher pH is likely from the concrete material used for fill at the Site.

Soil Boring C6:

This boring was located adjacent to the northwest corner of the area that formerly contained USTs. It was drill to a depth of twelve (12) feet bgs to sample the soil beneath the anticipated depth of the former USTs. Samples were collected at depths of eight (8) and twelve (12) feet bgs. This area did not contain concrete debris fill as did the rest of the Site.

Analytical results of samples from soil boring C6 indicated:

- DRO and ORO were **not detected** in either sample collected from the boring.
- Arsenic, chromium, and lead were detected significantly **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples collected from this boring,
- pH of the samples collected were 7.7 and 7.6 in the samples from eight (8) and twelve (12) feet bgs respectively. The higher pH is likely from the concrete material used for fill at the Site.

Soil Boring B7:

This boring was located in the area where the road from the entrance divides and goes to the north and to the east. The purpose was to determine if there was fill debris in this portion of the Site. Approximately one (1) foot of concrete debris fill was found in the boring. Samples were collected of the fill and the native material.

Analytical results of samples from soil boring B7 indicated:

- DRO and ORO were **not detected** in either sample collected from the boring.
- Arsenic, chromium, and lead were detected significantly **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples collected from this boring,
- pH of the samples collected were 7.4 and 7.6 in the samples from eight (8) and twelve (12) feet bgs respectively. The higher pH is likely from the concrete material used for fill.

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Soil Boring B5:

This boring was located near the anticipated location of a former AST northwest of the building on the Site. Approximately five (5) feet of concrete debris fill was found at this location.

Analytical results of samples from soil boring B5 indicated:

- DRO and ORO were **not detected** in either sample collected from the boring.
- Arsenic, chromium, and lead were detected significantly **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples collected from this boring,
- pH of the samples collected were 9.5 and 11 in the samples from fill and native soil respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring C5:

This boring was located in the area that was reportedly used for storage of sawdust and covered by the concrete slab north of the building. The fill in this location was approximately ten (10) feet thick and consisted of concrete debris. Groundwater was encountered in this boring at a depth of ten (10) feet bgs and rose to a static level of approximately four (4) feet bgs.

Analytical results of samples from soil boring C5 indicated:

- DRO and ORO were detected at levels significantly **below** the MTCA Method A cleanup level in the fill material.
- ORO was detected at a level significantly **below** the MTCA Method A cleanup level in the native soil.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- The non-carcinogenic PAH pyrene was detected significantly **below** the MTCA Method B cleanup levels in the fill material. Phenanthrene was detected at low levels in the sample of the fill material. However, Ecology has not established a cleanup level for this constituent under MTCA.
- cPAHs were **not detected** in the samples of the fill material.
- PAHs were **not detected** in the native soil.
- pH of the samples collected were 9.5 and 9.5 in the samples from fill and native soil respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring D4

This soil boring was located in the area that was used to wood hog fuel north of the building on the Site and was covered by the concrete pavement. During ECI's review of file information regarding the Site, it was observed that treated wood had been recycled in this area. Depending on the age of the treated wood it may have contained hexavalent chromium and arsenic which could be present in the fill material. At this location, there was two (2) to three (3) feet of concrete debris fill material.

Analytical results of samples from soil boring D4 indicated:

- DRO and ORO were **not detected** in the samples of the fill or native soil from this boring.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples of the fill material or native soil from this boring.
- pH of the samples collected were 8.4 and 8.2 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring E4

This boring was located to the northwest of the hoop structure at the Site in an area that was reportedly used for material processing and was not investigated in previous investigations because it is covered by the concrete pavement. In this soil boring, fill consisting of concrete debris was found to be approximately two (2) feet thick.

Analytical results of samples from soil boring E4 indicated:

- DRO and ORO were **not detected** in the samples of the fill or native soil from this boring.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples of the fill material or native soil from this boring.
- pH of the samples collected were 8.7 and 8.4 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring F4N:

This soil boring is located north of the "Hoop Structure" in an area that was covered by concrete paving. The location was identified as a data gap by Farallon because they had identified an area of contaminated soil to the north and had not been able to determine the southern extent. At this location, the fill material consisted of approximately two (2) feet of concrete debris.

Analytical results of samples from soil boring F4N indicated:

- DRO and ORO were **not detected** in the samples of the fill or native soil from this boring.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- The non-carcinogenic PAHs naphthalene, fluoranthene, and pyrene were detected significantly **below** the MTCA Method B cleanup levels in the fill material. Phenanthrene was detected at low levels in the sample of the fill material. However, Ecology has not established a cleanup level for this constituent under MTCA.
- cPAHs were **not detected** in the samples of the fill material.

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- PAHs were **not detected** in the native soil.
- pH of the samples collected were 12 and 8.8 in the samples from fill and native soil respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring F4S:

This boring is located to the northeast of the “Hoop Structure” between the “tipping area” and the northern trench excavated by Farallon. Contaminated soil was identified in the northern trench by Farallon but was not able to be delineated to the west because of the concrete paving. At this location, the fill consisted of two (2) to three (3) feet of concrete debris and silty sand.

Analytical results of samples from soil boring F4S indicated:

- DRO and ORO were detected at levels significantly **below** the MTCA Method A cleanup level in the fill material.
- DRO and ORO were not detected in the native soil.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- The non-carcinogenic PAHs fluoranthene and pyrene were detected significantly **below** the MTCA Method B cleanup levels in the fill material. Phenanthrene was detected at low levels in the sample of the fill material. However, Ecology has not established a cleanup level for this constituent under MTCA.
- cPAHs were **detected** below the individual Method B cleanup levels for the cPAHs in the fill material. However, the total equivalent concentration of cPAHs as benzo(a)pyrene is 0.0975 mg/kg which if rounded, is at the cleanup level of 0.1 mg/kg for total cPAHs samples of the fill material. ECI considers the cPAHs **to be a concern** on this area and the soil boring may define the western extent of the contamination observed by Farallon.
- PAHs were **not detected** in the native soil.
- pH of the samples collected were 8.5 and 8.1 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring F6:

This soil boring was located adjacent to the anticipated location of a former AST fueling area east of the building at the Site. It is located in an area adjacent to former conveyors at the site and in an area covered by concrete pavement. In this boring, the fill material consisted of three (3) feet of concrete debris along with some sandy silt and gravel.

Analytical results of samples from soil boring F6 indicated:

- DRO was detected at and estimated concentration significantly **below** the MTCA Method A cleanup level in the fill material. ORO **was not detected** in the fill material
- DRO and ORO were not detected in the sample of the native soil from this boring.

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- Chromium and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- Arsenic was detected in the fill material **above** the MTCA Method A cleanup level in the fill material but was **below** the MTCA Method A cleanup level in the native soil at this location.
- The non-carcinogenic PAHs fluoranthene and pyrene were detected significantly **below** the MTCA Method B cleanup levels in the fill material. Phenanthrene was detected at low levels in the sample of the fill material. However, Ecology has not established a cleanup level for this constituent under MTCA.
- The cPAHs benzo(a)anthracene, chrysene, benzo(a)pyrene, and benzo(b)fluoranthene were **detected below** the individual Method B cleanup levels for the cPAHs in the fill material. The total equivalent concentration cPAHs as benzo(a)pyrene was **below** the MTCA Method A cleanup level.
- pH of the samples collected were 7.8 and 7.8 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring E7N:

This soil boring was located in the concrete paved area southeast of the maintenance area of the building at the Site and north of the Farallon test pit E7. Farallon identified this area as being a data gap due to the presence of ORO and cPAHs in the soils adjacent to the concrete paving.

Analytical results of samples from soil boring E7 indicated:

- DRO and ORO were **not detected** in the samples of the fill or native soil from this boring.
- Arsenic, chromium and lead were detected **below** the MTCA Method A cleanup levels in the samples from this boring.
- PAHs were **not detected** in the samples of the fill material or native soil from this boring.
- pH of the samples collected were 7.5 and 7.6 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Soil Boring D8N:

This soil boring was located in the roadway north of the former truck scale south of the building at the Site to further define the western extent of contamination found by Farallon in their test pits E7 and E8. The fill in this location was approximately five (5) feet thick and consisted of concrete debris and sandy silt.

Analytical results of samples from soil boring F4S indicated:

- DRO and ORO were detected at levels significantly **below** the MTCA Method A cleanup level in the fill material.
- DRO and ORO was not detected in the native soil.

- Arsenic and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil.
- Total chromium was found in the fill material above the MTCA Method A cleanup level for hexavalent chromium and **below** the MTCA Method A cleanup level for trivalent chromium. However, since hexavalent chromium was **not detected** chromium is **not considered a concern** at this location.
- The non-carcinogenic PAH pyrene was detected significantly **below** the MTCA Method B cleanup level in the fill material.
- cPAHs were **not detected** in the samples of the fill and native soil from this boring.
- pH of the samples collected were 12 and 8.5 in the samples from fill and native soil respectively. The higher pH is likely from the concrete material used for fill.

5.3 Groundwater Sample Results

Soil Boring Groundwater Sample

As previously mentioned, perched groundwater was observed and sampled in soil boring C5. This was the only location other than in test pit G2A that perched water was observed. The perched groundwater from soil boring C5 was sampled and analyzed for the groundwater COCs of petroleum hydrocarbons, total and dissolved metals, PAHs, phthalates, pH, total dissolved solids, and sulfate. The analytical results of the groundwater samples are presented in Table 7, Appendix B. The Laboratory datasheets for the analyses are presented in Appendix D.

The analytical results of the perched groundwater sample indicated:

- DRO was present in the sample significantly **below** the MTCA Method A cleanup level in groundwater.
- GRO and ORO were **not detected** in the sample collected.
- Total arsenic was found **above** the MTCA Method A cleanup level for total Arsenic in the sample collected. However, the dissolved arsenic was **below** the MTCA Method A cleanup level indicating that some of the total arsenic may be from suspended sediment in the sample. Ecology generally looks at total metals levels when considering groundwater cleanup. However, those samples would be from a permanently installed groundwater monitoring well that is properly developed. This sample is from a temporary well installed in a soil boring and is used for screening purposes. The arsenic in this location may be from the grinding of treated wood that was reported of have occurred in this area.
- Total chromium was detected **below** the MTCA Method A cleanup level for groundwater. Dissolved chromium was not detected.
- Total copper was detected **significantly above** the Washington State Department of Ecology Freshwater Water Quality Criteria. This criterion was used because a Method A or B cleanup level for copper has not been established under MTCA. As with the arsenic, dissolved copper

was **not detected** in the dissolved metals analysis and may be a result of sediment entrained in the sample.

- Total lead was detected **below** the MTCA Method A cleanup level. Dissolved lead was **not detected** in the sample analyzed.
- Total Zinc was detected **below** the water quality criteria in the sample collected. Dissolved zinc was not detected.
- Manganese was detected **significantly above** the Water Quality criteria for total manganese but not detected for dissolved manganese.
- The non-carcinogenic PAH phenanthrene was **detected** at low levels. Ecology does not have a cleanup level established for this constituent.
- cPAHs were **not detected** in the sample of the perched water from boring C5.
- Phthalates which are a constituent of plastics were **not detected** in the sample from boring C5.
- The pH of the perched water was at 8.9. This is higher than what is generally found in groundwater and indicates that **the perched water has been influenced by the fill material** at the Site.
- Sulfate was detected **significantly below** the Secondary Maximum Concentration Level (SMCL) for drinking water established under the Safe Drinking Water Act. This criterion was used because MTCA cleanup levels and water quality criteria have not been established for this constituent.

Monitoring Well Samples

On February 5, 2018 and again on May 7, 2018, ECI collected samples from the three newly installed monitoring wells at the Site. These wells were installed at a depth to obtain samples from the permanent groundwater aquifer beneath the Site. Well MW3 is considered an upgradient well for the Site while wells MW1 and MW2 are considered downgradient wells to the Site.

The analytical results of the groundwater samples collected from these wells indicate:

- The values of the detected constituents identified below were not significantly different between the wells. This indicates that the Site **does not appear to have impacted** the groundwater aquifer beneath the site.
- Petroleum hydrocarbons, PAHs and phthalates were **not detected** in the samples collected.
- Total chromium and manganese were detected **below** the MTCA Method A cleanup level and **below** the Freshwater Water Quality Criteria respectively in the samples obtained in February. Dissolved Manganese was also detected **below** the water quality criteria.
- Total manganese was **above** the Fresh Water Quality Criteria in the sample collected from the upgradient well MW3 on May 7, 2018. However, the dissolved Manganese was **below** the Fresh Water Quality Criteria and less than the dissolved manganese concentration observed in February.

- The pH of the water was in the range of 6.1 to 6.2 in the wells at the time of sampling. This is in the range generally found for groundwater in the State.
- Sulfate was detected **below** the Secondary Maximum Concentration Level (SMCL) for drinking water but the concentrations were not as low as found in the perched water from boring C5. This indicates that the sulfate may be originating from an off-site source or is naturally occurring in the area.
- The sulfate concentration in May 2018 was lower than the February concentration by approximately one half. The concentration between the wells did not vary indicating that the sulfate may be originating from an off-site source or is naturally occurring in the area.
- Total Arsenic was not detected in any of the samples obtained in February 2018 but was detected below the MTCA Method A cleanup level in the upgradient well MW3 at 1.35 µg/L.
- Total Zinc was not detected in any of the samples obtained in February 2018 but was detected below Fresh Water Quality Criteria in the upgradient well MW3 at 5.4 µg/L.
- Total dissolved solids (TDS) were **below** the Secondary Maximum Concentration Level (SMCL) for drinking water during both the February and May 2018 sampling events although the values were significantly lower in May 2018 by approximately half. This may be a result of the wells sitting for three months between sampling events and allowing fine grained suspended solids to settle. TDS is a measure of the combined content of all inorganic and organic substances contained in the water and is used as an indicator of the presence of a broad array of chemical contaminants. The levels of TDS in the samples from the wells at this Site are in the range that would be expected in naturally occurring groundwater unaffected by the COCs at the Site.

5.4 Additional Test Pit Analytical Results (EPH/VPH)

The analytical results of the soil samples from the additional test pits are summarized below by test pit. Because of the high level of organic material at the Site, samples that had concentrations of DRO and ORO were re-extracted using a silica gel cleanup method to remove interference of the organic material not associated with DRO and ORO and re-analyzed. The analytical results are presented in Tables 5 and 9, Appendix B. The Laboratory datasheets for the analyses are presented in Appendix D.

Test Pit F6:

This test pit was excavated in an area immediately southeast of the former eastern AST fueling area in an area that was labeled as a materials sorting area by Farallon and was reportedly within the concrete pad surrounding the main processing structure at the Site. However, it was observed that this area was not paved and had not been investigated.

ECI found that the thickness of the fill at this location is approximately two (2) feet thick at this location and consists of course, sandy silt with gravel with brick and concrete debris.

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Analytical results of samples from test pit F6 indicated:

- DRO and ORO were detected in the fill material **below** the MTCA Method A cleanup levels in fill material and was not detected in the native soil,
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- The cPAHs chrysene and benzo(b)fluoranthene were detected in the fill material but were **below** the individual MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene, and
- pH of the samples collected were 7.7 and 7.6 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit H7A:

This test pit was located east of the paved road at the Site in an area that was previously identified as not having been analyzed for PAHs by Farallon. This test pit was to further define the extent of PAHs previously observed in adjacent test pits by Farallon.

ECI found that the thickness of the fill at this location is approximately four (4) feet thick at this location and consists of blackish brown, loose, coarse, sandy silt with wood debris, burned wood debris, and with white streaks/pieces (assumed to be drywall). The test pit had a very strong hydrogen sulfide odor that is presumed to be from decomposing drywall.

Analytical results of samples from test pit H7A indicated:

- DRO and ORO were **not detected** in the fill material or in the native soil.
- Arsenic, chromium, and lead were detected **below** the MTCA Method A cleanup levels in both the fill material and the native soil,
- The cPAHs benzo(a)anthracene, chrysene, benzo(a)pyrene, and benzo(b)fluoranthene were detected in the fill material but were **below** the individual MTCA Method B cleanup levels and were **below** the MTCA Method A cleanup level for total equivalent concentration of PAHs as benzo(a)pyrene, and
- pH of the samples collected were 7.5 and 7.6 for the fill and native soils respectively. The higher pH is likely from the concrete material used for fill.

Test Pit H5B:

This test pit was excavated to obtain a sample for EPH and VPH analysis. The test pit was excavated to a depth of three (3) feet bgs where a sample of the fill material was collected. The fill consists of blackish brown, loose, coarse, sandy silt with white streaks/pieces (assumed to be drywall). The test pit had a very strong hydrogen sulfide odor that is presumed to be from decomposing drywall.

The analytical results of the EPH and VPH analyses were reported as mg/kg of the various carbon Fractions. The sample analyses indicated that the composition of the hydrocarbons consisted of primarily extractable petroleum hydrocarbons in the aliphatic and aromatic C21 to C34 carbon range.

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These results indicate that the hydrocarbons are heavy oil hydrocarbons. The results were used to calculate site specific MTCA Method B cleanup levels discussed in Section 7 of this RI report. The results of the EPH and VPH analyses are presented in Table 9, Appendix B.

Test Pit E8A:

This test pit was excavated to obtain a sample for EPH and VPH analysis. The test pit was excavated to a depth of four (4) feet bgs. The fill consisted of brown to Reddish brown, loose, coarse, sandy silt with brick and concrete debris. A four (4) to six (6) inch thick layer of blackish brown, loose, coarse, sandy silt with brick and concrete debris was found at a depth of approximately two (2) feet bgs. It is believed that the blackish color was from what appeared to be crushed asphalt at that depth. A sample for EPH and VPH analyses was collected at a depth of approximately two (2) feet bgs below the black colored layer.

The analytical results of the EPH and VPH analyses were reported as mg/kg of the various carbon Fractions. The sample analyses indicated that the composition of the hydrocarbons consisted of primarily extractable petroleum hydrocarbons in the aliphatic and aromatic C21 to C34 carbon range. These results indicate that the hydrocarbons are heavy oil hydrocarbons. The results were used to calculate site specific MTCA Method B cleanup levels discussed in Section 7.0 of this RI report. The results of the EPH and VPH analyses are presented in Table 9, Appendix B.

6.0 CONCEPTUAL SITE MODEL

This section provides a summary of the conceptual site model, which includes a discussion of the contaminants of concern (COCs), the media of concern, the distribution of contamination in soil, and the potential exposure pathways for the Site.

6.1 Contaminants of Concern

During This RI, ECI initially had the soil samples collected at the Site analyzed for select contaminants of concern (COCs) based on the previous investigations at the Site. If any of the COCs that were indicative of other COCs were detected above the laboratory reporting limits, then ECI evaluated the need to analyze for those additional COCs in select areas. The only contaminant that was added to the analyses was hexavalent chromium in several locations where the total chromium analysis results were above the MTCA Method A CUL for hexavalent chromium. Hexavalent chromium was not detected in any of the samples analyzed.

Based on the findings of this Remedial Investigation and previous investigations at the Site, the primary COCs) for the Site are in soil. Groundwater from the upper most continuous aquifer at a depth of approximately 24 to 40 feet bgs was sampled twice during this RI and appears to be unaffected by the Site. The COCs in the soil identified during this RI are:

- Total petroleum hydrocarbons (TPH) in the Diesel (DRO),
- TPH in the heavy oil range (ORO)
- Carcinogenic PAHs (cPAHs)
- Metals (arsenic, cadmium, chromium and lead)
- pH (minor COC)

These contaminants are primarily a result of the processing of construction and demolition waste/debris and the use of the construction and demolition debris as fill at the Site and the possible use of oil as a dust suppressant. The debris mainly consists of:

- Crushed concrete and bricks
- Chipped wood,
- Asphalt roofing shingles,
- Drywall,
- Electrical wire
- Shredded miscellaneous Styrofoam, and plastic material, and
- other miscellaneous materials

Some of the contaminants are also a result of the importing of foundry sand used to construct berms at the Site. This material appears to have contained metals. The berms are reported to also contain organic material, and debris such as Styrofoam, plastic bottles, wood chips, fabric, and pieces of metal. pH is considered a minor COC because it appears that there are areas of higher pH at the site and that

the overall pH of the fill material at the Site is higher than what is generally expected in the soils of western Washington. While the pH is higher than generally expected with a couple of exceptions it remains in the upper levels of the neutral range. It is thought that the pH at the site is primarily from crushed concrete.

6.2 Distribution of Contaminants of Concern

Because of the nature of the operations and the use of the construction and demolition debris as fill material, the distribution of the COCs in the soil at the site is not homogenous and varies in location. The COCs at the Site primarily are located in the southeastern portion of the Site and in the berms along the southern and eastern perimeter of the Site. The southwestern, northern, and northeastern portions of the Site, while having concrete rubble at the surface and in the fill material, do not appear to contain the COCs. Figures 6 through 10 in Appendix A present the areas of concern (AOCs) for the COCs at the site broken out by the primary COCs.

6.3 Exposure Pathways

As defined in WAC 173-340-200, an exposure pathway describes the mechanism by which a hazardous substance takes or could take from a source or contaminated medium to an exposed receptor. Figure 11 in Appendix A presents a graphical representation of the Conceptual Site Model and the exposure pathways. It also shows whether a pathway is complete either presently or potentially in the future. Those pathways that are complete will need to be addressed by any cleanup action taken at the Site. The exposure pathways are summarized below.

6.3.1 Soil

Potential soil exposure pathways at the Site include direct ingestion of, or dermal contact with, hazardous substances in soil by visitors, residents, and workers and groundwater leaching pathway. This pathway is considered complete because the contamination is located at the surface and to the maximum depth of the fill at the Site (11 feet bgs).

6.3.2 Groundwater

Groundwater is not currently considered an exposure pathway at this site. Groundwater at the Site is at a depth of 25 to 50 feet bgs and has been shown not to be affected by the COCs at the Site.

6.3.3 Air

Potential air exposure pathways at the Site include inhalation of hazardous substances in soil by visitors, residents, and workers. Soil vapor/air can become contaminated from volatilization of the COCs adsorbed to the fill materials and soil mineral surfaces. There is also the potential for the generation of hydrogen sulfide gas from the decomposition of drywall buried at the Site. Because the AOCs are not near the current structures at the Site, Vapor Intrusion does not appear to be a major pathway at this time.

6.3.4 Surface Water

Surface water at the Site is mostly contained on the Site by means of stormwater ponds. However, in the northern portion of the Site there is a stormwater pond that has an overflow catch basin that reportedly discharges to the north along a ravine owned by Glacier Recycle north of the Site. Big Soos Creek lies approximately ¼ north of the Site. This discharge was formerly permitted from 1998 to at least 2009 through an Industrial Stormwater General Permit issued by Ecology.

Potential surface water exposure pathways at the Site include direct ingestion of, or dermal contact with, hazardous substances in soil by visitors, residents, workers, and wildlife. Even though discharge of surface water was permitted by Ecology, there is the potential for contaminants to leave the Site through the stormwater system. Therefore, this pathway is considered complete.

6.3.5 Terrestrial

ECI completed Terrestrial Ecological Evaluation (TEE) form (Appendix E) for the Site and determined that the Site qualifies for an exclusion from further evaluation based on the proposed remedy for this Site is to pave the Site thus providing a cap that will prevent exposure to the contaminants by plants and wildlife. Institutional controls will be implemented to provide maintenance of the paving/cap and though the use of an environmental covenant at this site. This paving and the institutional controls will be implemented upon the approval of the proposed site remedy by Ecology. The completed TEE form is provided in Appendix E.

6.4 Potential Receptors

Potential receptors to exposure to the contaminants at this Site are primarily workers at the Site and construction workers. In addition, there is the possibility that visitors to the Site could potentially be exposed to the contaminants. Human off of the Site are anticipated to be a significant receptor.

Other potential receptors at include wildlife that may cross the Site or attempt to nest at the Site. This includes birds, large and small mammals and other terrestrial biota. Big Soos Creek lies approximately ¼ mile north of the Site. This creek is considered a salmon bearing stream and includes a Washington State Department of Fish and Wildlife salmon hatchery approximately one-mile east of the Site and approximately 1.5 stream-miles from the closest potential Site discharge location.

7.0 PROPOSED CLEANUP LEVELS

Pursuant to Chapter 70.105D RCW, Ecology has established procedures for developing cleanup levels and requirements for cleanup actions. The MTCA regulations provide three approaches for establishing cleanup levels:

- **Method A: ARARs and Tables.** This method is to be used where the cleanup action is routine and involves relatively few hazardous substances. The soil and groundwater cleanup levels are set at concentrations at least as stringent as concentrations specified in applicable state and federal laws (ARARs) and are presented in Tables 720-1, 740-1, and 745-1 of the regulations (WAC 173-340).
- **Method B: Universal Method.** Method B is the “universal method” for determining cleanup levels for all media at all sites. Under Method B, cleanup levels for individual hazardous substances are established using applicable state and federal laws and the risk equations and other requirements specified in WAC 173-340.

Method B has two tiers, a “Standard” tier and a “Modified” tier. The “Standard” Method B tier uses generic default assumptions to calculate cleanup levels. The “Modified” Method B tier provides for the use of chemical-specific or site-specific information to change selected default assumptions. These can be established using a quantitative risk assessment process.

Method B cleanup levels for petroleum hydrocarbons can be calculated using site-specific data on the carbon fractions in the petroleum present at a Site. Many times this allows for a higher cleanup level than the published Method A cleanup levels for DRO and ORO. This requires that the media of concern containing the petroleum hydrocarbons be analyzed using Extractable Petroleum Hydrocarbon (EPH) and Volatile Petroleum Hydrocarbon (VPH) analytical methods.

- **Method C: Conditional Method.** When compliance with cleanup levels developed under Method A or B are impossible to achieve or may cause greater environmental harm, Method C cleanup levels for individual hazardous substances may be established for surface water, groundwater, and air. Method C industrial soil and air cleanup levels may also be established at industrial properties that meet specific criteria.

Like Method B, Method C is divided into two tiers, a “Standard” and a “Modified” tier. The “Standard” Method C tier uses generic default assumptions to calculate cleanup levels. The “Modified” Method C tier provides for the use of chemical-specific or site-specific information to change selected default assumptions. These can be established using a quantitative risk assessment process.

Initially, analytical results from samples collected at the Site were compared to MTCA Method A cleanup levels as a screening to determine if a specific contaminant was of concern at the Site. If Method A CULs were not published, sample results were compared to published MTCA Method B CULs. If soil CULs were not established under MTCA Method A or B, then background concentrations for those constituent were used. For groundwater, if CULs were not established under MTCA Method A or B, then the concentrations were compared to the Washington State Freshwater Water Quality Criteria and/or background.

ECI attempted to calculate site-specific Method B cleanup levels for the DRO and ORO contaminated soils at the Site. The cleanup levels that resulted from the Method B calculations were significantly lower than the Method A cleanup levels for DRO and ORO. This is because there were significant carcinogenic PAHs in the samples and at the Site.

Based on the COCs identified for this Site and listed in Section 4.1 of this report and on the Site Specific Method B calculations for the DRO and ORO, ECI has determined that Method A cleanup levels are appropriate at this site. There are a limited number of COCs in each area of concern at the Site and any cleanup is routine when they be present. Industrial cleanup levels cannot be used at this Site because the area is zoned RA-5 (rural area, one dwelling unit per 5 acres). In order to use industrial cleanup levels, Ecology requires that the area be zoned industrial (WAC 173-340-200).

7.1 Proposed Soil Cleanup Levels

The following table presents the proposed soil CULs for the COCs identified. The CULs are also shown in the data tables presented in Appendix B.

Table 3: Cleanup Levels for the Constituents of Concern in Soil

Contaminant of Concern (COCs)	Soil Cleanup Levels (mg/kg)
Gasoline Range Organics	100/30 ³
Diesel Range Organics (DRO)	2,000
Oil Range Organics (ORO)	2,000
cPAHs ⁴	0.1
Arsenic	20
Cadmium	2
Chromium (Trivalent)	2,000
Chromium (hexavalent)	19
Lead	250
Mercury	2
Organic Conventional Contaminants	Varies
Inorganic Conventional Contaminants (i.e. Sulfate)	Varies
Corrosive Wastes in soil (pH)	Varies

7.2 Proposed Groundwater Cleanup Levels

While groundwater does not appear to have been affected by the contaminants at the Site, ECI is proposing groundwater cleanup levels to be used for compliance monitoring at the Site should it be required. The cleanup levels are based on published MTCA Method-A and Method B Groundwater Cleanup Levels. Because the groundwater potentially discharges into the creek to the north, the Fresh/Acute Surface Water Quality Criteria for Aquatic Life (173-201A WAC) is proposed as the

³ Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture: 100 mg/Kg.; All other gasoline mixtures: 30 mg/kg (MTCA Table 740-1).

⁴ Total concentration as benzo(a)pyrene using the toxicity equivalency methodology in WAC 173-340-708 (8)

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groundwater cleanup levels for several of the metals. If Method A CULs were not published, MTCA Method B CULs for those COC is being proposed. If CULs were not established under MTCA Method A, Method B, or under the Water Quality Criteria, then background concentrations will be used for compliance.

The following table presents the CULs the groundwater COCs.

Table 4: Cleanup Levels for the Constituents of Concern in Groundwater

Contaminant of Concern (COCs)	Groundwater Cleanup Levels (µg/L)
Gasoline Range Organics	1,000/800 ³
Diesel Range Organics (DRO)	500
Oil Range Organics (ORO)	500
cPAHs ⁵	0.1
Phthalates	varies
Arsenic	5
Cadmium	5
Lead	15
Chromium (Trivalent)	100
Chromium (hexavalent)	50
Mercury	2
Manganese	50 ⁶
Copper	4.64 ⁶
Zinc	35.4 ⁶
Total Dissolved Solids	Not established
Inorganic Conventional Contaminants (i.e. Sulfate, Sulfide)	Not established
pH	Not established

⁵ Total concentration as benzo(a)pyrene using the toxicity equivalency methodology in WAC 173-340-708 (8)

⁶ Fresh/Acute Surface Water Quality Criteria for Aquatic Life (173-201A WAC)

8.0 PROPOSED POINTS OF COMPLIANCE

WAC 173-340-740 indicates that the point of compliance is where the CULs for each media of concern shall be attained.

8.1 Point of Compliance for Soil

The most conservative point of compliance for soil is for the protection of groundwater. WAC 173-340-740(6)(b) states:

“For soil cleanup levels based on the protection of groundwater, the point of compliance shall be established in the soils throughout the site.”

The point of compliance for soil protection human exposure is defined in WAC 173-340-740(6)(d). It states:

“For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the site from the ground surface to fifteen feet below the ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities.”

8.2 Point of Compliance for Groundwater

For Groundwater, WAC 173-340-720(8)(b) states that:

“The standard point of compliance shall be established throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.”

8.3 Point of Compliance used for the Site

Because soil was the only media of concern that was found contaminated, a point of compliance is proposed to be established for soil based on the protection of groundwater and is throughout the Site. The determination of the adequacy of any remedial action at the Site will be based on the ability to comply with MTCA Method A CULs.

9.0 COMPLIANCE MONITORING

There are three types of compliance monitoring identified for remedial cleanup actions performed under MTCA (WAC 173-340-410): protection, performance, and confirmational.

9.1 Protection Monitoring

According to MTCA Protection Monitoring confirms:

“...that human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action...”

Any remedial actions taken at the Site will require that protection monitoring be performed to ensure that the public and Site personnel are not subject to unsafe conditions. This could include:

- Surrounding portions of the Site where excavation is occurring with temporary fencing and checking that the fence was properly closed at the end of the workday; and
- Air monitoring during remedial activities to verify that work was being conducted with proper ventilation.

9.2 Performance Monitoring

Performance monitoring confirms:

“...that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels...”

Performance monitoring will need to be conducted during any remedial action at the Site to confirm that cleanup levels and or goals have been achieved. This could include the collection of soil samples from the sidewalls and floor of any excavation at the Site, surface water samples, groundwater samples, and potentially ambient air or vapor samples. These monitoring parameters would be specified in a Cleanup Action Plan (CAP) prepared for the Site before the remedial activities occur.

9.3 Confirmational Monitoring

Confirmational monitoring confirms:

“...the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained.”

Confirmational monitoring will be conducted as specified by and/or approved by Ecology. This confirmational monitoring would be specified in the CAP prepared for the Site prior to any remedial action. Confirmation monitoring could include sampling soil for the Site-specific COCs or indicator constituents at the limits of any excavation to verify compliance with applicable cleanup goals and/or levels. It could also include periodic surface water and groundwater monitoring at the Site to confirm that the remedial actions taken at the Site are protective of the surface waters and the groundwater.

10.0 SUMMARY and RECOMMENDATIONS

10.1 Summary

ECI has conducted a review of historical environmental investigations and completed a Remedial Investigation at the Site known as Glacier Recycling located at 32300 148th Ave. SE, Auburn, Washington. This Site was used for light industrial uses from at least the 1960's through the early 1980s when a concrete pipe manufacturing business operated on the Subject Property. A wood chipping/recycling operation (Northwest Wood & Fiber Recovery Inc.) operated on the Property between 1990 and 2002, and a King County permitted construction and demolition material recycling operation used the Site from 2006 to 2013. During operations the site was filled with primarily crushed concrete and brick debris and wood. It was also reported by others that asphalt roofing material and drywall were used as fill. Several environmental concerns have been raised regarding the property by the local and state regulatory agencies. These concerns included:

- The nature and extent of the fill material.
- Potential contamination in the fill material and native soil beneath the fill
- The Potential for leachate through the fill to contaminate groundwater beneath the Site.

In 2013 and 2014, a former operator at the Site had two environmental investigations conducted at the Site. The results of those investigations identified areas where the fill material and or native soil at the Site was contaminated with carcinogenic PAHs, oil and diesel range hydrocarbons and select metals. As a result of the findings of these previous investigations, the Washington State Department of Ecology listed the Site on their list of contaminated sites that need to be investigated and remediated.

Previous investigations conducted by others attempted to identify the extent of suspected contamination. These investigations were limited though by their scope of work and Site accessibility (e.g. concrete pavement). ECI reviewed these previous investigations, and talked with both the State and the County regarding their concerns. Based on this previous work ECI identified additional data gaps that needed to be address and proceeded to conduct additional investigation activities to fill these data gaps.

ECI conducted additional investigations by excavating additional test pits, advancing soil boring and installing three groundwater monitoring wells.

Based on the results of the additional investigation, ECI was able to confirm the results of the previous investigations and further define the extent of contamination at the Site. It appears that the primary media of concern at the Site is soil. Groundwater samples collected in February 2018 and May 2018 have shown that the shallow continuous aquifer at the Site has not been affected by the activities at the Site. ECI did identify a discontinuous zone(s) of seasonally perched groundwater located at the base of the fill material that may be affected by the leaching of precipitation through the fill material.

ECI confirmed that the primary contaminants of concern present at the Site are:

- Total petroleum hydrocarbons (TPH) in the Diesel (DRO),

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- TPH in the heavy oil range (ORO)
- Carcinogenic PAHs (cPAHs)
- Metals (arsenic, cadmium, chromium and lead)
- pH (minor COC)

Because of the nature of the operations and the use of the construction and demolition debris as fill material, the distribution of the COCs in the soil at the site is not homogenous and varies in location. The COCs are present primarily in the southeastern portion of the Site and in the berms along the southern and eastern perimeter of the Site (Figures 6 through 10, Appendix A).

10.2 Recommendations

Based on the results of this RI as well as previous investigations, ECI recommends that with the approval of Ecology, remedial actions be undertaken to address the potential exposure pathways at the Site. Because of the distribution of the contamination at the Site and the volume of contaminated material, it is recommended that select areas of the Site with the highest DRO/ORO contamination and cPAH contamination be excavated for disposal and the entire Site be “capped” with asphalt paving.

Because contamination above the cleanup levels would remain at the Site, an environmental covenant would need to be prepared and submitted to the King County Recorder’s office to be attached to the title for the Property. The environmental covenant would describe maintenance and monitoring activities that would need to be undertaken to make sure that the “cap” at the Site remains intact and that the remedy at the Site remains protective.

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Glacier Recycling
32300 148th Ave. SE, Auburn, WA 98092

June 1, 2018

11.0 REFERENCES

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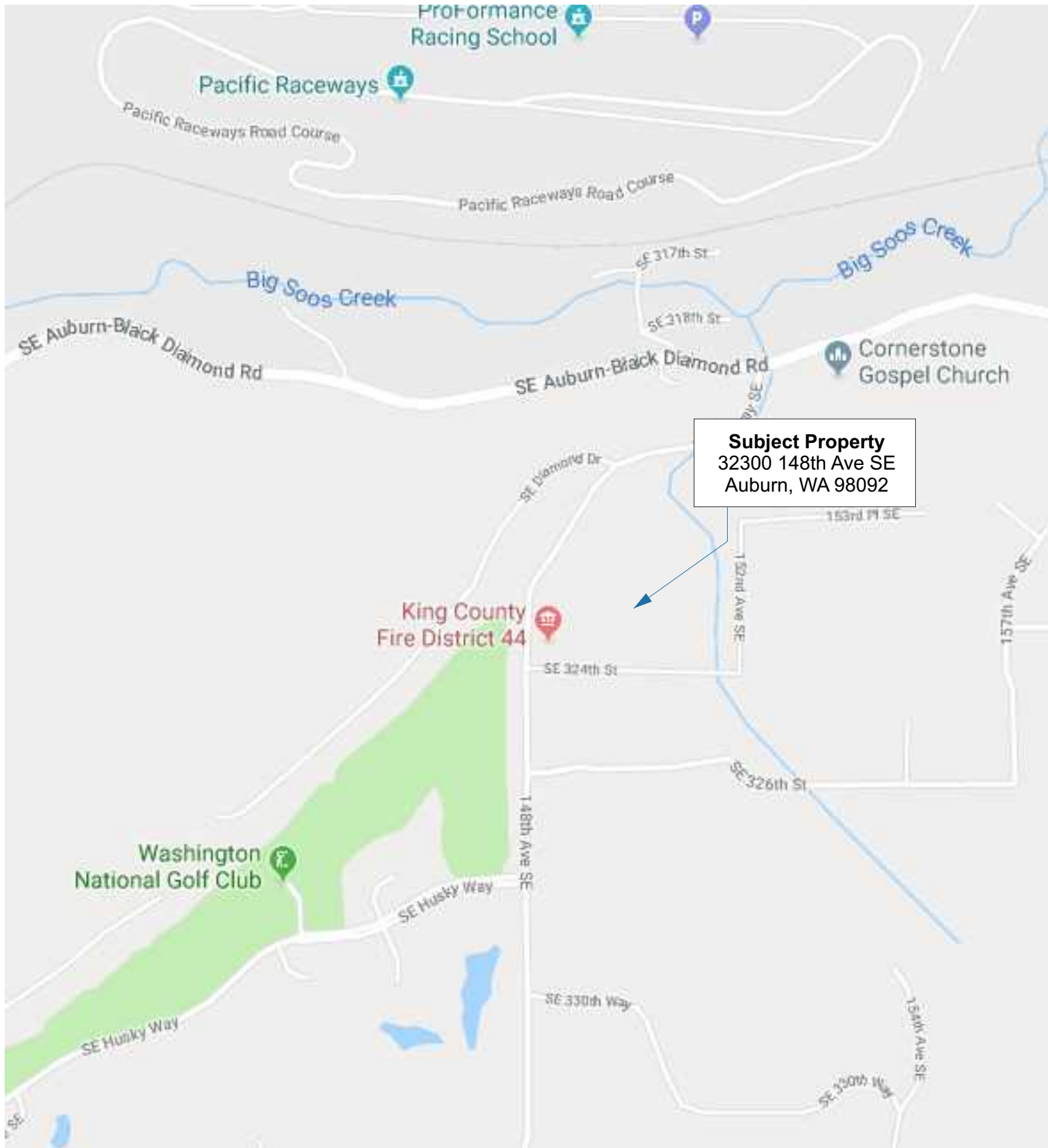
Figure 7: Polycyclic Aromatic Hydrocarbons (PAHs) Areas of Concern

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Figure 11: Conceptual Site Model Exposure Pathways



Not To Scale

Site Location Map
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092

Date: June 4, 2018
Completed By: K. Spencer
Reviewed By: S. Spencer
Version: ECI-001
Project No.: 0676-01-01

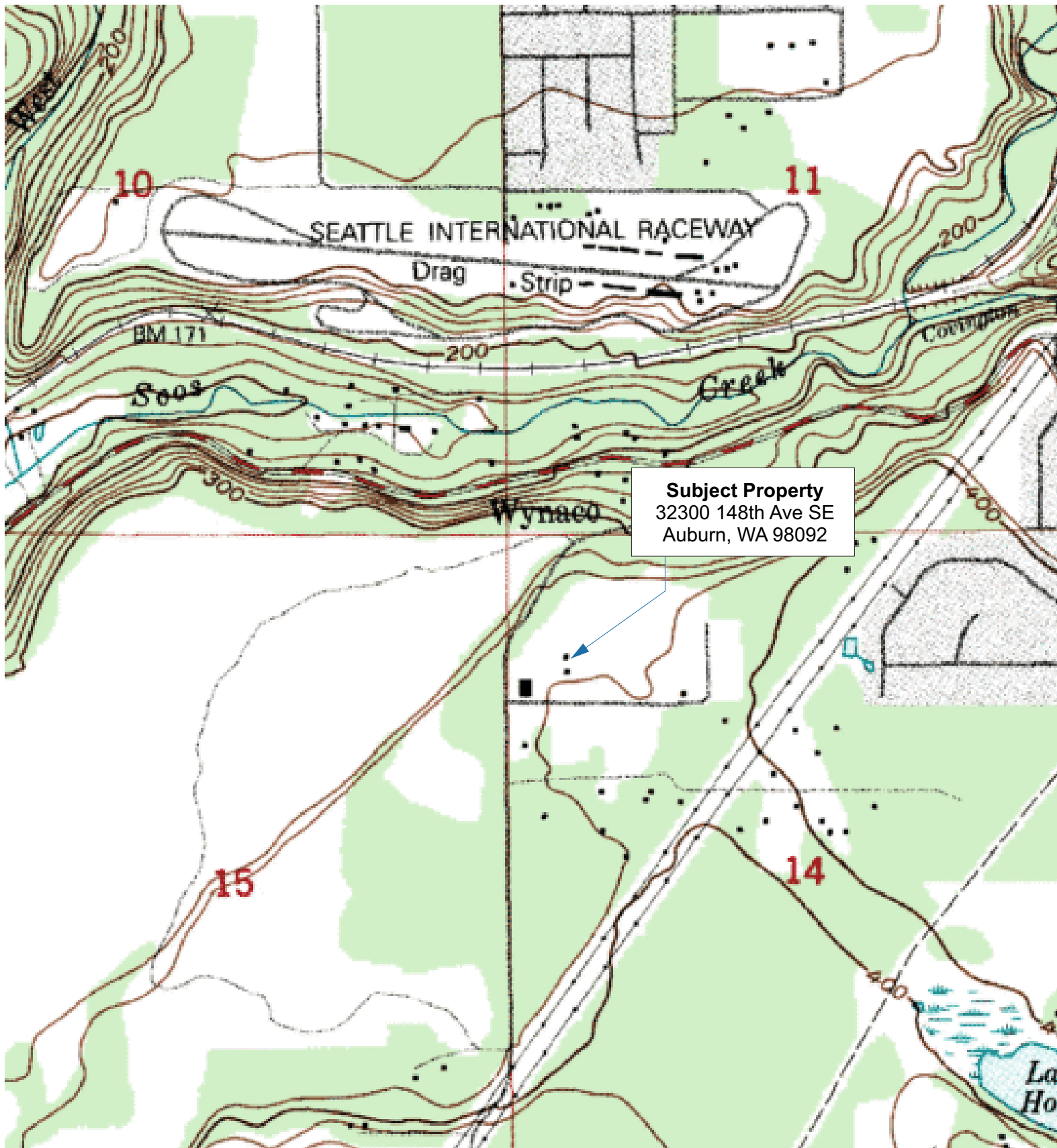
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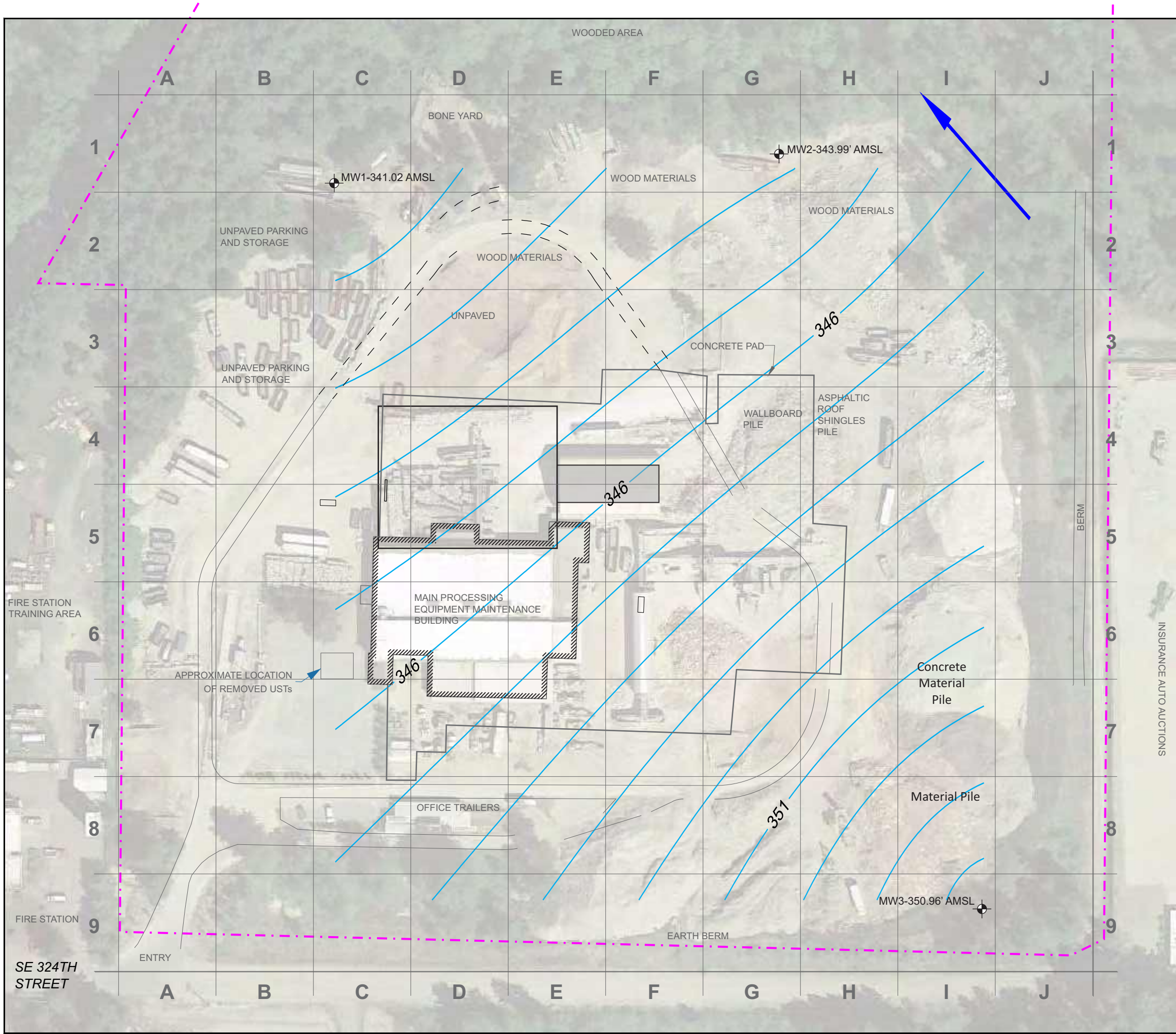
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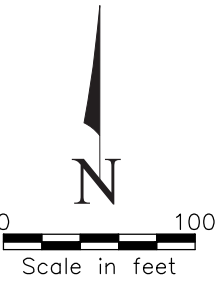
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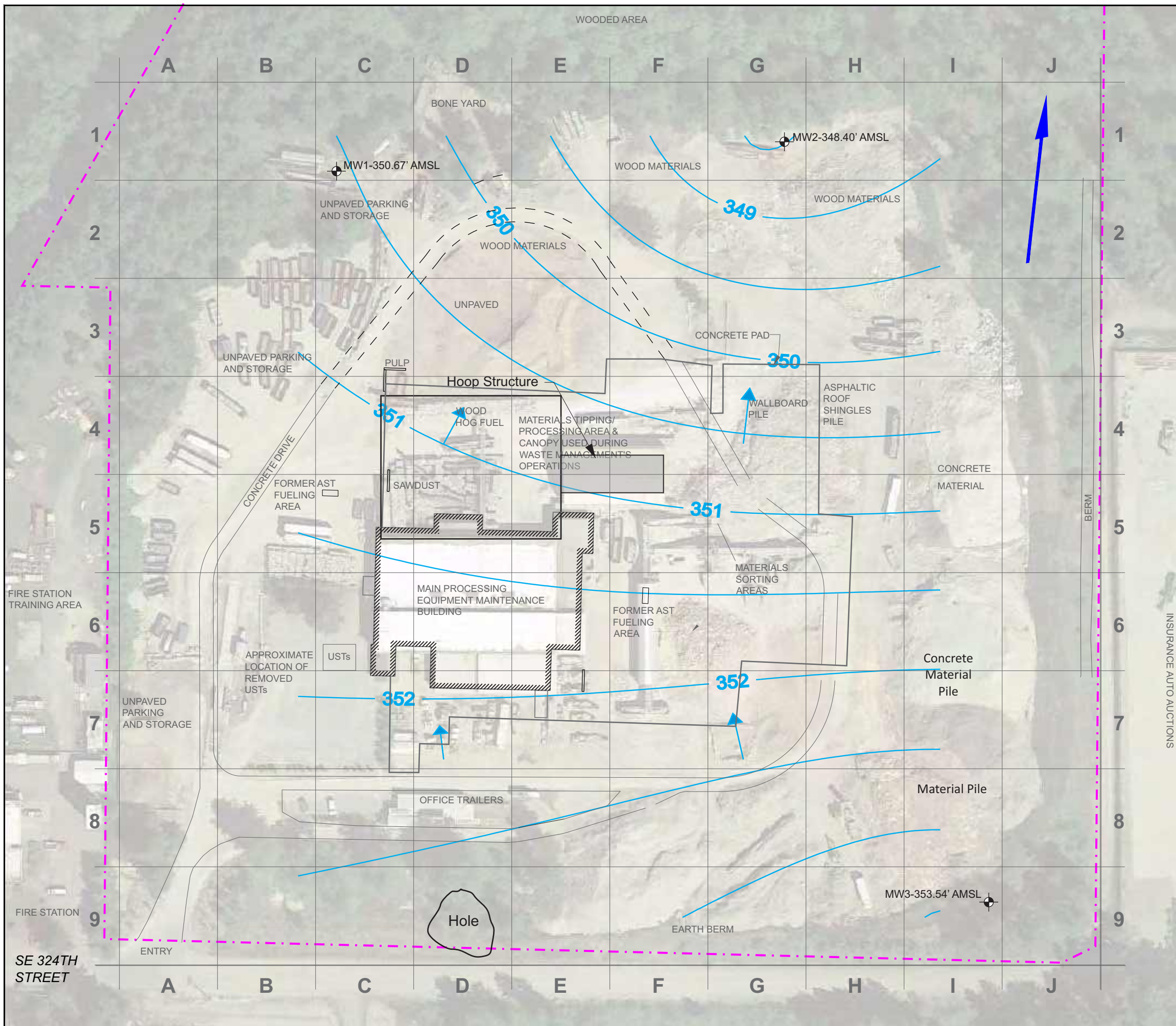
- MONITORING WELL (ECI)
- EDGE OF CONCRETE
- PROPERTY BOUNDARY
- GROUNDWATER FLOW DIRECTION
- WATER LINE

NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS. OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND MATERIAL PILES ARE NO LONGER PRESENT.

Groundwater Contours Map
May 2018
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	04
Reviewed By:	S. Spencer	
Version:	R3-060218	
Project No.:	0676-01-01	Sheet 04 of 11

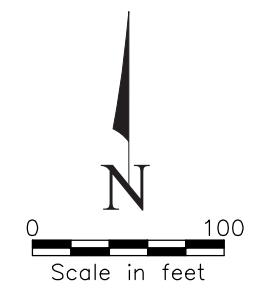




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- MONITORING WELL (ECI)
- EDGE OF CONCRETE
- PROPERTY BOUNDARY
- GROUNDWATER FLOW DIRECTION
- WATER LINE

NOTE:
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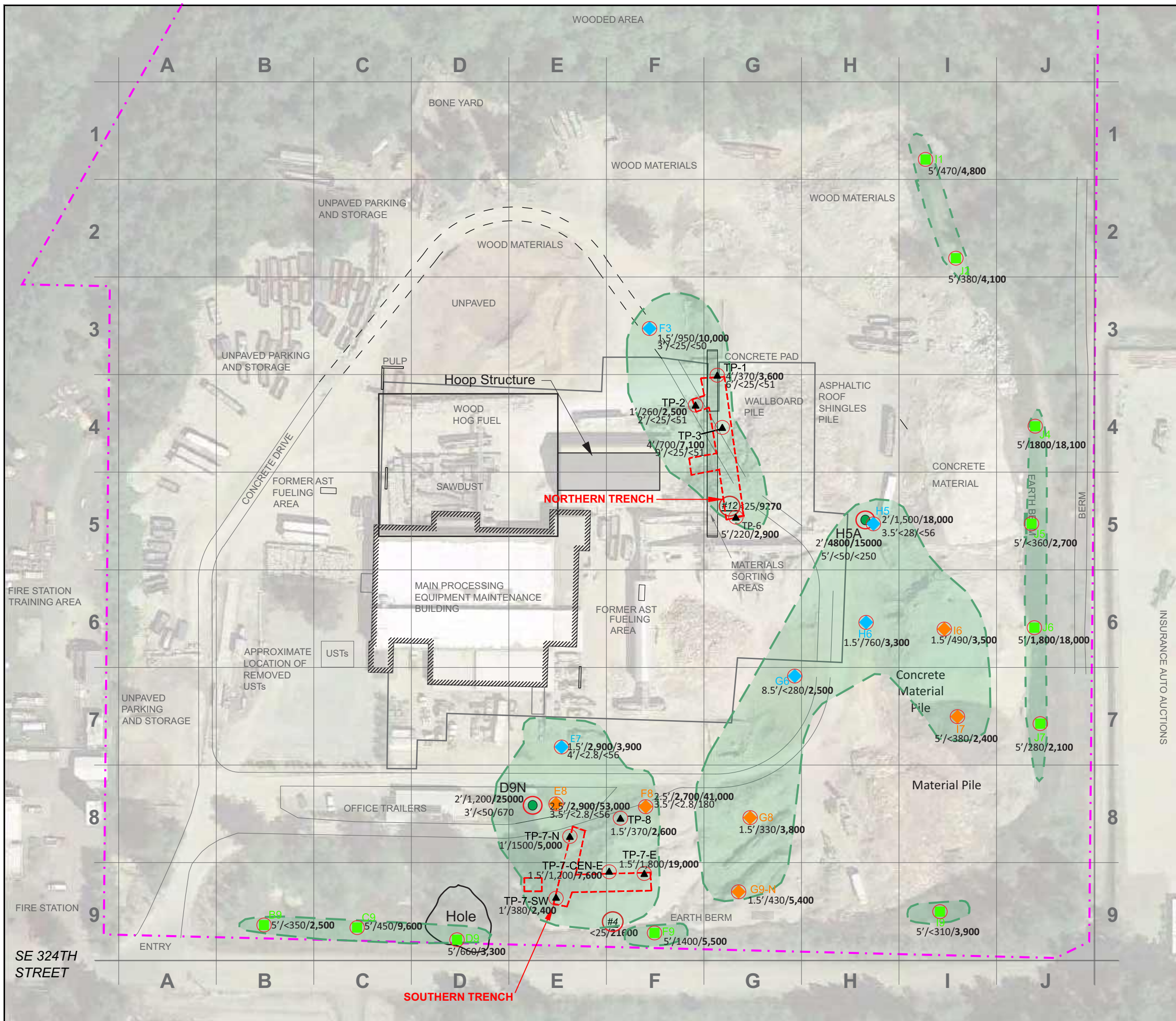


Groundwater Contours Map
February 2018
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	05
Reviewed By:	S. Spencer	
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LEGEND

--- ORO VERIFICATION TEST TRENCH (FARALLON, 2014)

SUBSURFACE INVESTIGATION TEST PIT LOCATIONS

- Boring Location (ECI)
- Test Pit (ECI)
- Red Ring - Sample Locations with COCs exceeding CUL
- Edge of Concrete
- ◆ Former Material Debris Area Test Pit (Farallon)
- ◆ Concrete Pad Area Test Pit (Farallon)
- ◆ Bone Yard Area Test Pit (Farallon)
- Earth Berm Test Pit (Farallon)
- TP4 ● Test Pit Location (Langseth)
- T6 Trench Location (Langseth)
- WP2 □ Retention Pond Sampling Location (Langseth)
- 5 POND ● Stormwater Pond Sampling Location (Langseth)
- #8 Soil Sampling Location (Langseth)

Approximate extent of
Soil Contaminated with
DRO,ORO

17.4' / <50 / 3,500 = Soil Sample
Depth/DRO/ORO

--- PROPERTY BOUNDARY

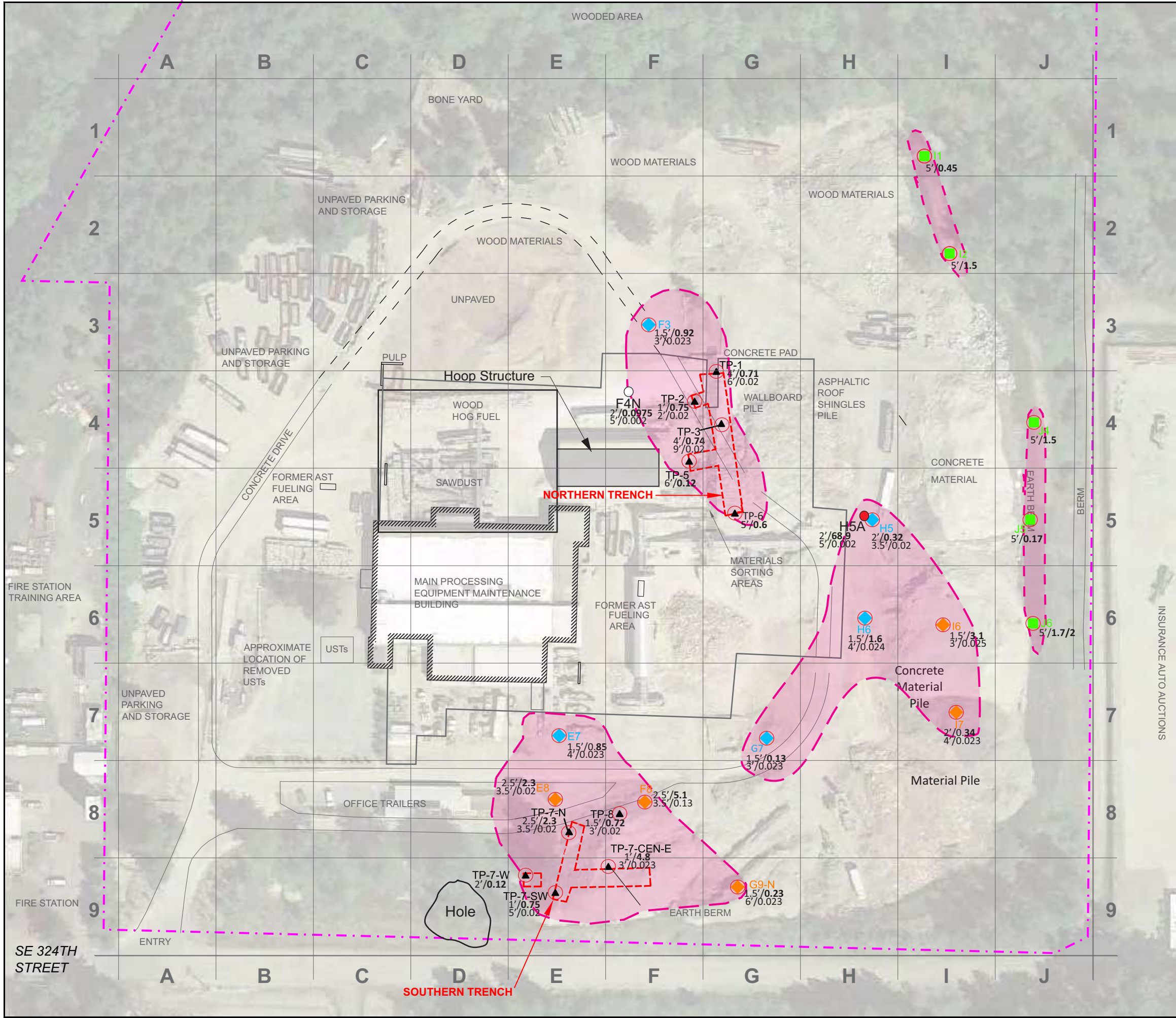
— W — W — W — WATER LINE

NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS.
OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND
MATERIAL PILES ARE NO LONGER PRESENT.

TP-9 ▲ Soil Sampling Location (Farallon)

Petroleum Hydrocarbons Areas of Concern Remedial Investigation 32300 148th Ave SE Auburn, WA 98092

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	06
Reviewed By:	S. Spencer	
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LEGEND

--- ORO VERIFICATION TEST TRENCH (FARALLON, 2014)

SUBSURFACE INVESTIGATION TEST PIT LOCATIONS

- Boring Location (ECI)
- Test Pit (ECI)
- Red Ring - Sample Locations with COCs exceeding CUL
- Edge of Concrete
- ◆ Former Material Debris Area Test Pit (Farallon)
- ◆ Concrete Pad Area Test Pit (Farallon)
- ◆ Bone Yard Area Test Pit (Farallon)
- Earth Berm Test Pit (Farallon)
- TP4 ● Test Pit Location (Langseth)
- T6 Trench Location (Langseth)
- WP2 □ Retention Pond Sampling Location (Langseth)
- 5 POND ● Stormwater Pond Sampling Location (Langseth)
- #8 Soil Sampling Location (Langseth)

Approximate extent of Soil Contaminated with cPAHs

17.4'/0.32 = Soil Sample Depth/cPAH

--- PROPERTY BOUNDARY

— W — W — WATER LINE

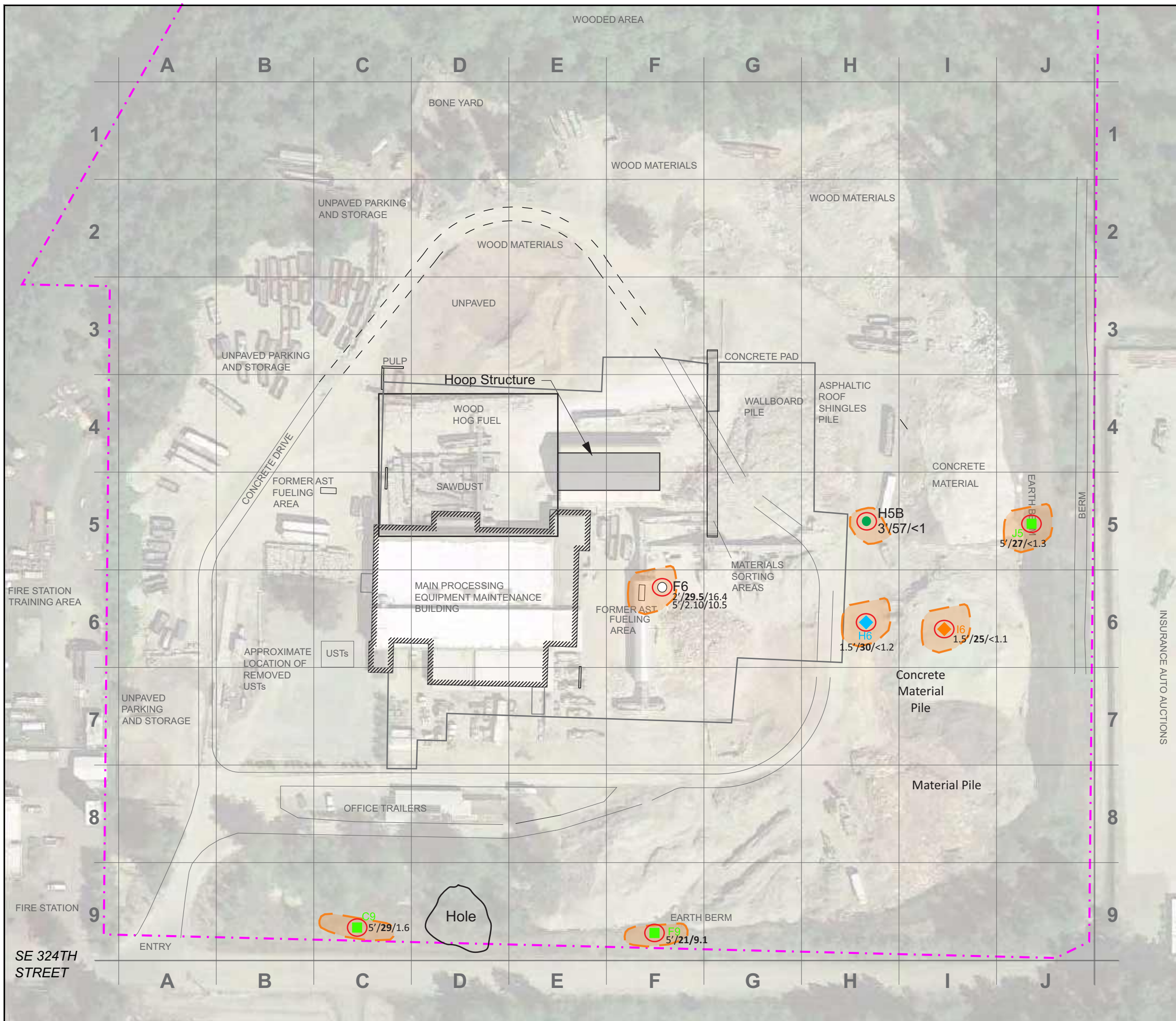
NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS.
OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND MATERIAL PILES ARE NO LONGER PRESENT.

Polycyclic Aromatic Hydrocarbons (cPAHs) Areas of Concern
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	07 Sheet 07 of 11
Reviewed By:	S. Spencer	
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0 100
Scale in feet



LEGEND

--- ORO VERIFICATION TEST TRENCH (FARALLON, 2014)

SUBSURFACE INVESTIGATION TEST PIT LOCATIONS

- Boring Location (ECI)
- Test Pit (ECI)
- Red Ring - Sample Locations with COCs exceeding CUL
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- ◆ Former Material Debris Area Test Pit (Farallon)
- ◆ Concrete Pad Area Test Pit (Farallon)
- ◆ Bone Yard Area Test Pit (Farallon)
- Earth Berm Test Pit (Farallon)

TP4 ● Test Pit Location (Langseth)

T6 Trench Location (Langseth)

WP2 □ Retention Pond Sampling Location (Langseth)

5 POND ● Stormwater Pond Sampling Location (Langseth)

#8 Soil Sampling Location (Langseth)

Approximate extent of Soil Contaminated with Arsenic/Cadmium

7.4'/27/<1.3 = Soil Sample Depth/Arsenic/Chromium

--- PROPERTY BOUNDARY

--- W --- W --- WATER LINE

NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS.
OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND
MATERIAL PILES ARE NO LONGER PRESENT.

**Arsenic & Cadmium
Areas of Concern
Remedial Investigation**
32300 148th Ave SE
Auburn, WA 98092

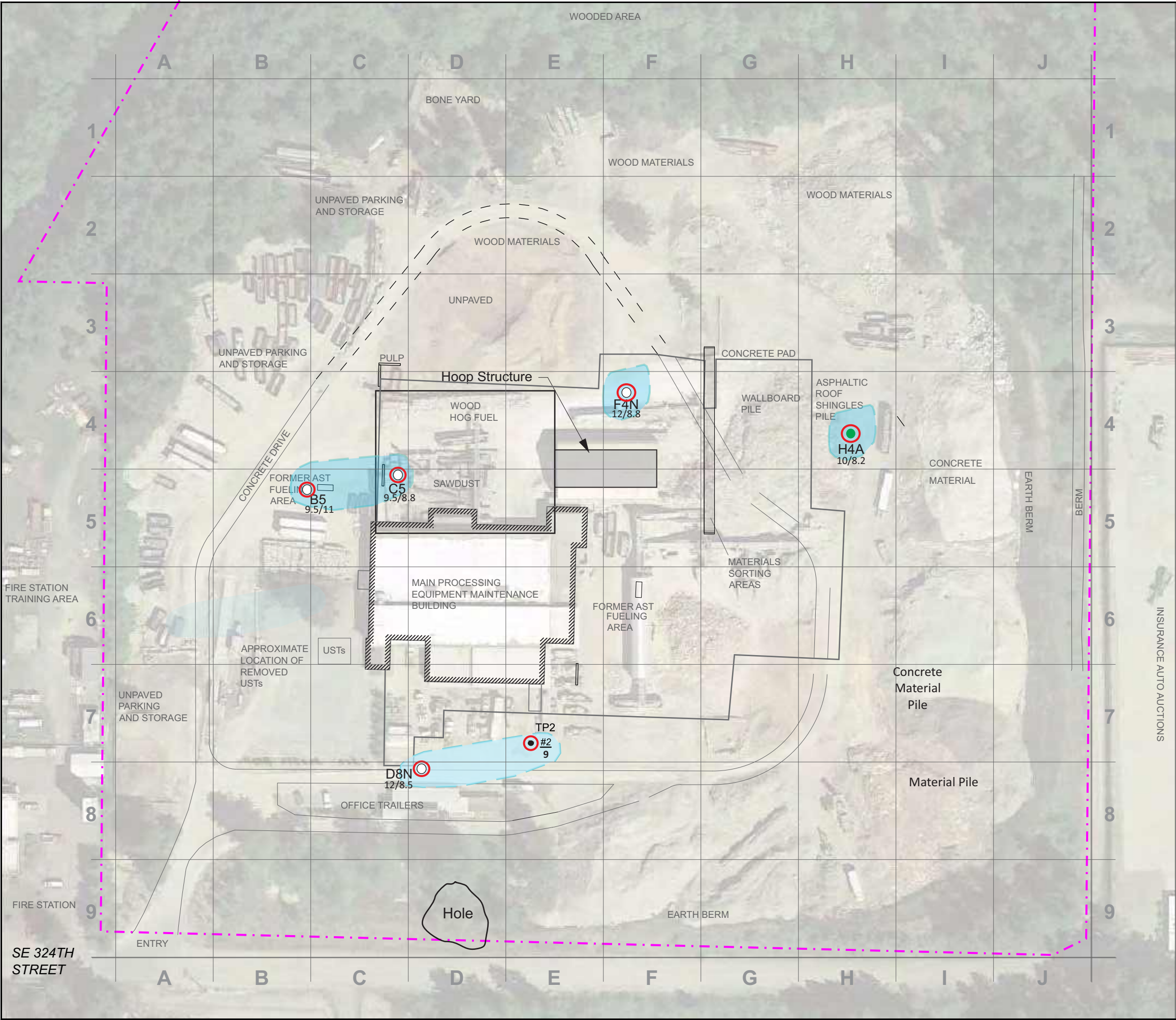
Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	08 Sheet 08 of 11
Reviewed By:	S. Spencer	
Version:	R3-060218	
Project No.:	0676-01-01	

eci
Environmental
Services

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0 100
Scale in feet

N



LEGEND

--- ORO VERIFICATION TEST TRENCH (FARALLON, 2014)

SUBSURFACE INVESTIGATION TEST PIT LOCATIONS

- Boring Location (ECI)
- Test Pit (ECI)
- Red Ring - Sample Locations with COCs exceeding CUL
- Edge of Concrete
- ◆ Former Material Debris Area Test Pit (Farallon)
- ◆ Concrete Pad Area Test Pit (Farallon)
- ◆ Bone Yard Area Test Pit (Farallon)
- Earth Berm Test Pit (Farallon)
- TP4● Test Pit Location (Langseth)
- T6 Trench Location (Langseth)
- WP2■ Retention Pond Sampling Location (Langseth)
- 5 POND● Stormwater Pond Sampling Location (Langseth)
- #8 Soil Sampling Location (Langseth)
- Approximate Soil Extent with ph >9
- 12/8.5 = Soil Sample Depth / pH

--- PROPERTY BOUNDARY

--- W --- W --- WATER LINE

NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS.
OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND
MATERIAL PILES ARE NO LONGER PRESENT.

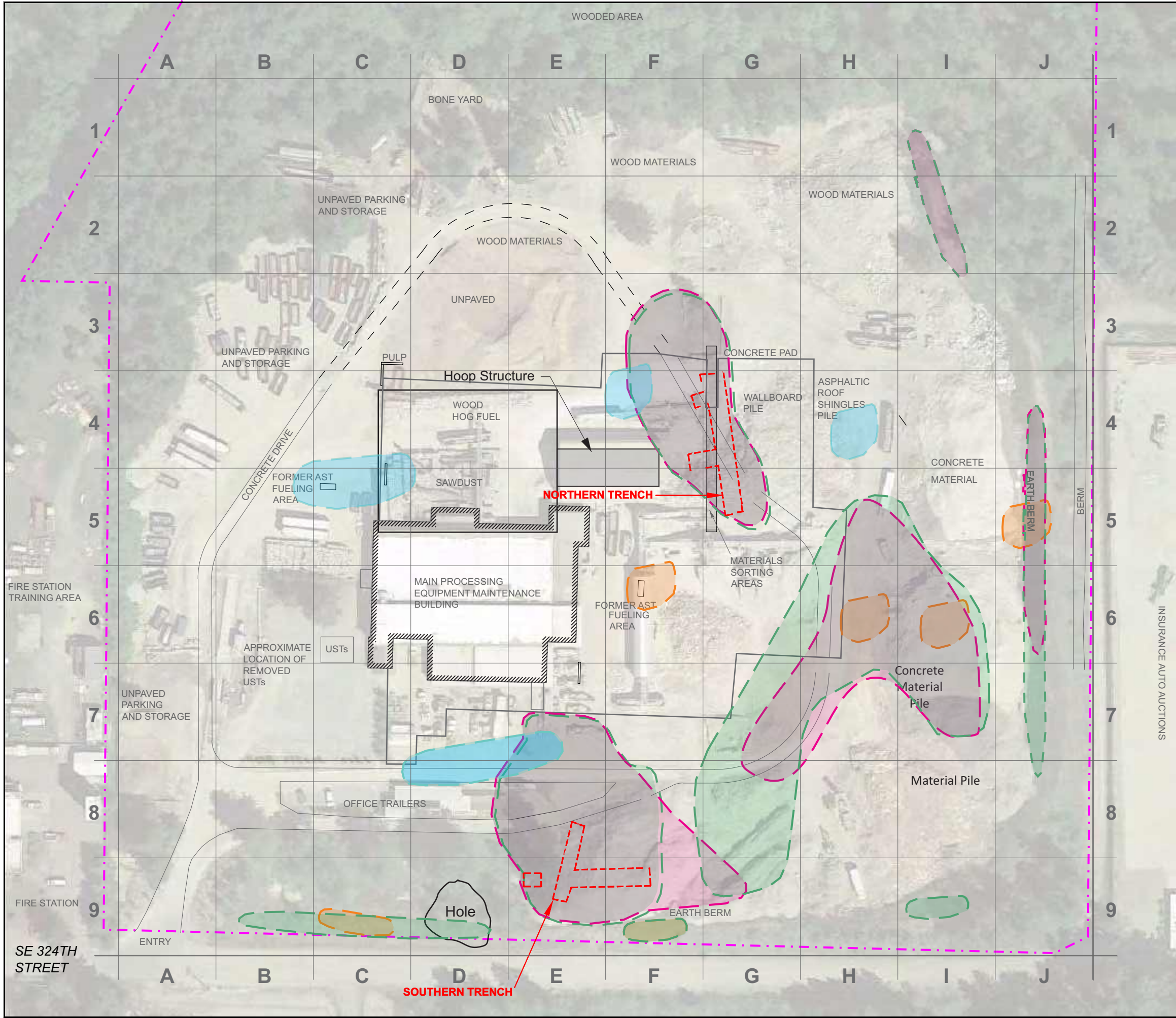
pH Areas of Concern
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	09 Sheet 09 of 11
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0 100
Scale in feet



LEGEND

--- ORO VERIFICATION TEST TRENCH (FARALLON, 2014)

SUBSURFACE INVESTIGATION TEST PIT LOCATIONS

- Boring Location (ECI)
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- 5 POND ● Stormwater Pond Sampling Location (Langseth)
- #8 Soil Sampling Location (Langseth)

Approximate extent of Soil Contaminated with DRO,ORO

Approximate Soil Extent with pH >9

Approximate extent of Soil Contaminated with Arsenic/Cadmium

Approximate extent of Soil Contaminated with cPAHs

--- PROPERTY BOUNDARY

— W — W — W — WATER LINE

NOTE:
ALL MATERIAL PILES ARE FORMER PILE LOCATIONS.
OPERATIONS AT THE FACILITY WERE DISCONTINUED IN 2013 AND
MATERIAL PILES ARE NO LONGER PRESENT.

**All Areas of Concern
Remedial Investigation
32300 148th Ave SE
Auburn, WA 98092**

Date:	June 4, 2018	Figure No.:
Completed By:	K. Spencer	10 Sheet 10 of 11
Reviewed By:	S. Spencer	
Version:	R3-060218	
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0 100
Scale in feet

Primary Source	Contaminants of Parental Concern	Media of Concern	Transport Mechanisms	Exposure Media	Exposure Pathway	Current (C) and Potential Future (F) Receptors			
						Commercial Industrial	Construction Worker	Residential/Recreational	TEE Receptors
Construction & Demolition Waste Used as Fill	Diesel Range TPH Oil Range TPH Arsenic cPAHs pH ☒ Adsorbed into Soil ☒ Dissolved in Water ☐ non-aqueous phase	☒ Surface Soil (0-2 feet bgs)	☒ Direct Release to soil ☒ Migration to subsurface soil ☐ Migration to groundwater ☒ Volatilization ☐ Runoff or erosion ☐ Uptake by plant or animal ☐ Other (List) _____	☒ Soil	☒ Ingestion ☒ Dermal Exposure	C	C		C
		☒ Soil (. 2 feet bgs)	☒ Direct Release to soil ☒ Migration to groundwater ☒ Volatilization ☐ Other (List) _____	☐ Groundwater	☐ Ingestion ☐ Dermal Exposure	C	C		C
		☐ Groundwater	☐ Release to groundwater ☐ Volatilization ☐ Future migration to surface water ☐ Future migration to sediment ☐ Uptake by plants or animal ☐ Other (List) _____	☐ Air	☒ Inhalation	C	C		C
		☒ Surface Water	☒ Release to surface water ☐ Volatilization ☐ Sedimentation ☒ Uptake by plant or animal ☐ Other (List) _____	☒ Surface Water	☒ Ingestion ☒ Dermal Exposure	F	F	F	F
		☐ Sediment	☐ Release to Surface water ☐ Resuspension or erosion ☐ Uptake by plant or animal ☐ Other (List) _____	☐ Sediment	☐ Ingestion ☐ Dermal Exposure	F	F	F	F

Appendix B: Project Tables

Table 5: Test Pit Analytical Results

Table 6: Soil Boring Analytical Results

Table 7: Groundwater Elevations

Table 8: Groundwater Analytical Results

Table 9: Soil EPH/VPH Analytical Results

Appendix B Project Tables

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	HCID			Gasoline TPH ¹ (mg/kg)	Diesel ² (mg/kg)	Heavy Oil (mg/kg)	Select Volatile Organic Constituents (mg/kg)				Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
				Gasoline	Diesel	Heavy Oil				Benzene	Toluene	Ethylbenzene	Total Xylenes						
E8	E8A-2	2	4/25/2018	--	--	--	--	760x	5,500	--	--	--	--	12.1	<1	34.9	--	18.0	<1
F6	F6-1F	1	4/25/2018	--	--	--	--	97x	560	--	--	--	--	12.3	<1	21.7	--	27.9	<1
	F6-3N	3	4/25/2018	--	--	--	--	<50	<250	--	--	--	--	2.61	<1	9.91	--	2.87	<1
G2	G2A-3F	3	1/24/2018	--	--	--	--	99x	920	--	--	--	--	5.28	<1	22.2	<0.5	14.40	<1
	G2A-4N	4	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	3.15	<1	11.9	--	2.12	<1
H3	H3A-2F	2	1/24/2018	--	--	--	--	<50	970	--	--	--	--	8.25	<1	19.8	<0.6	29.3	<1
	H3A-4N	4	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	2.35	<1	12.1	--	2.08	<1
H4	H4A-2F	2	1/24/2018	--	--	--	--	60x	1,600	--	--	--	--	6.74	<1	21.3	<0.5	21.9	<1
	H4A-3N	3	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	3.27	<1	10.6	--	3.94	<1
H5	H5A-2F	2.0	1/24/2018	--	--	--	--	4,800x	15,000	--	--	--	--	10.1	1.25	22.4	<0.7	112	<1
	H5A-5N	5	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	2.94	<1	12.6	--	2.76	<1
	H5B-3	3	4/25/2018	--	--	--	--	530x	4,500	--	--	--	--	57.8	<1	18.7	--	176	<1
H6	G6A-2F	2	1/24/2018	--	--	--	--	<50	960	--	--	--	--	11	<1	19.1	<0.5	26.1	<1
	G6A-7N	7	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	2.75	<1	12.5	--	2.45	<1
H7	H7A-3F	3	4/25/2018	--	--	--	--	<50	<250	--	--	--	--	7.11	<1	14.0	--	13.5	<1
	H7A-6N	6	4/25/2018	--	--	--	--	<50	<250	--	--	--	--	5.57	<1	9.02	--	11.7	<1
H8	G8A-2F	2	1/24/2018	--	--	--	--	<50	630	--	--	--	--	3.62	<1	11.1	--	4.45	<1
	G8A-3N	3	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	2.39	<1	12.2	--	1.99	<1
H9	E9A-1F	1	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	5.31	<1	15.8	--	17.1	<1
	E9A-2N	2	1/24/2018	--	--	--	--	<50	<250	--	--	--	--	2.65	<1	12.8	--	4.0	<1
D9	D9A-2F	2	1/24/2018	--	--	--	--	1,200x	24,000	--	--	--	--	13.2	<1	22.5	<0.6	25.9	<1
	D9A-3N	3	1/24/2018	--	--	--	--	<50	670	--	--	--	--	6.54	<1	9.60	--	15.9	<1
Langseth Test Pits																			
TP1 (D7)	1	2 1/2'	12/30/2013	--	--	--	--	<25	365	--	--	--	--	<5	<1	28	<0.5	5.1	<0.5
TP2 (E7)	2	2'	12/30/2013	--	--	--	--	<25	900	--	--	--	--	<5	<1	18	--	37	<0.5
5 Pond (F7)	3	Surface	12/30/2013	--	--	--	--	<25	655	--	--	--	--	6.1	<1	21	<0.5	167	<0.5
T1 SE (Trench 1) (D9)	4	18"	12/30/2013	--	--	--	--	<25	21,600	--	--	--	--	5.8	<1	17	--	27	<0.5
T 2 (G9)	5	Fill material	12/30/2013	--	--	--	--	<25	450	--	--	--	--	5.1	<1	15	--	48	<0.5
T 3 (I8,9)	6	2'	12/31/2013	--	--	--	--	<25	245	--	--	--	--	<5	<1	18	--	25	<0.5
T 5 (J6)	7	At concrete Rubble	12/31/2013	--	--	--	--	<25	972	--	--	--	--	<5	<1	17	--	44	<0.5
T 6 (J4)	8	Grab Suspect Concrete fines	12/31/2013	--	--	--	--	<25	282	--	--	--	--	<5	<1	16	--	38	<0.5
WP1 (NW pond 1)(E2)	9	Outflow	12/31/2013	--	--	--	--	<25	511	--	--	--	--	5.9	<1	8	--	9.1	<0.5
WP2 (N middle Pond) (F2)	10	Center surface	12/31/2013	--	--	--	--	<25	230	--	--	--	--	<5	<1	12	--	15	<0.5
WP3 (NE pond)	11	inflow	12/31/2013	--	--	--	--	<25	307	--	--	--	--	9.4	<1	19	<2.5	156	<0.5
T10 (Suspect PCS)(G5)	12	6'	12/31/2013	--	--	--	--	<25	9,270	--	--	--	--	6.5	<1	11	--	18	<0.5
T 10 (North Excavated) (G4)	13		12/31/2013	--	--	--	--	<25	417	--	--	--	--	<5	<1	13	--	33	<0.5
T 10 (Middle Excavated) (G4)	14		12/31/2013	--	--	--	--	<25	1,240	--	--	--	--	<5	<1	10	--	65	<0.5
T 11 (suspect PCS) (F5)	15	3 1/2'	12/31/2013	--	--	--	--	--	--	--	--	--	--	<5	<1	7	--	10	<0.5
T 12 (NW wood debris area) (D3)	16	1'	12/31/2013	--	--	--	--	<25	200	--	--	--	--	<5	<1	8	--	24	<0.5
Farallon Test Pits Baseline Site Conditions																			
A5	A5-1.9-060514	1.9	6/5/2014	<24	<60	<120	--	--	--	--	--	--	--	11	<0.94	26	--	42	0.15
B3	B3-6.0-060514	6	6/5/2014	<23	58	300	--	<29	<57	--	--	--	--	3.0	<0.74	17	--	3.7	0.044
C1	C1-3.0-060514	3	6/5/2014	<20	<50	<100	--	--	--	--	--	--	--	2.5	<0.81	20	--	1.9	0.018
C4	C4-5.0-060514	5	6/5/2014	<21	<52	<100	--	--	--	--	--	--	--	3.2	<0.75	15	--	2.9	0.034
D2	D2-3.0-060514	3	6/5/2014	<21	<52	220	--	<26	<52	--	--	--	--	<2.6	<0.85	15	--	2.0	0.031
D3	D3-1.5-060514	1.5	6/5/2014	<24	<59	<120	--	--	--	--	--	--	--	6.7	<1.1	24	--	19	0.038
D7	D7-3.0-060514	3	6/3/2014	<22	<56	230	--	52	340	--	--	--	--	5.5	<0.70	20	--	8.4	0.043
D8	D8-3.0-060514	3	6/5/2014	28	130	1,100	<2.3	68	60	<0.0091	<0.023	<0.023	<0.023	<2.6	<0.86	21	--	2.0	0.028
E1	E1-1.9-060514	1.9	6/5/2014	<26	<65	<130	--	--	--	--	--	--	--	8.9	<1.0	34	--	23	0.045
E2	E2-1.5-060514	1.5	6/4/2014	30	400	750	8.1	170	530	<0.02	<0.051	<0.051	<0.051	5.4	<1.1	16	--	11	0.035
E3	E3-3.0-060514	3	6/5/2014	<21	<52	<100	--	--	--	--	--	--	--	<3.1	<1.0	20	--	2.2	0.015
E7	E7-1.5-060314	1.5	6/3/2014	65	580	3,400	20	420	3,900	<0.02	<0.051	<0.051	<0.051	11	<1.1	29	--	47	0.087
	E7-4.0-060314	4	6/3/2014	--	--	--	<1.7	<26	<52	<0.0067	<0.017	<0.017	<0.017	--	--	--	--	--	--
E8	E8-2.5-060314	2.5	6/3/2014	110	3,100	13,000	<3.7	2,900	53,000	<0.0016	<0.0032	<0.0016	<0.0032	10	<1.0	28	--	29	0.055
	E8-3.5-060314	3.5	6/3/2014	--	--	--	<2.8	<28	<56	<0.0011	<0.0023	<0.0011	<0.0023	--	--	--	--	--	--
F1	F1-3.0-.60314	3	6/4/2014	<23	<57	<110	--	--	--	--	--	--	--	3.7	<0.98	17	--	8.4	0.054

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling
32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	HCID			Gasoline TPH ¹ (mg/kg)	Diesel ² (mg/kg)	Heavy Oil (mg/kg)	Select Volatile Organic Constituents (mg/kg)				Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
				Gasoline	Diesel	Heavy Oil				Benzene	Toluene	Ethylbenzene	Total Xylenes						
F2	F2-1.0-060414	1	6/4/2014	<220	<550	1,600	--	130	1,300	--	--	--	--	11	<1.0	20	--	29	0.078
F3	F3-1.5-060414	1.5	6/4/2014	<1100	<2700	11,000	--	950	10,000	--	--	--	--	6.5	<1.0	28	--	16	0.020
	F3-3.0-060414	3	6/4/2014	--	--	--	--	<25	<50	--	--	--	--	--	--	--	--	--	--
F7	F7-5.0-060314	5	6/3/2014	<21	<52	<100	--	--	--	--	--	--	--	3.0	<0.99	17	--	2.1	0.018
F8	F8-2.5-060314	2.5	6/3/2014	130	3,200	9,300	11	<2700	41,000	<0.025	<0.061	<0.061	<0.061	7.5	<1.1	16	--	32	0.076
	F8-3.5-060314	3.5	6/3/2014	--	--	--	<3.1	<27	180	<0.012	<0.031	<0.031	<0.031	--	--	--	--	--	--
G1	G1-3.0-060414	3	6/4/2014	<24	<60	<120	--	--	--	--	--	--	--	5.7	<0.99	20	--	14	0.050
G2	G2-4.0-060414	4	6/4/2014	<20	<50	<99	--	--	--	--	--	--	--	<2.6	<0.86	12	--	2.0	0.015
G3	G3-2.2	2.2	6/4/2014	<22	98	610	--	140	1,100	--	--	--	--	8.0	<0.96	34	--	21	0.030
G4	G4-1.5	1.5	6/4/2014	<25	82	540	--	140	770	--	--	--	--	8.7	<1.1	35	--	49	0.085
G5.6	G5.6-2.5	2.5	6/5/2014	<25	84	<120	--	120	690	--	--	--	--	4.7	<1.0	23	--	30	0.030
G5	G5-4.0	4	6/4/2014	<23	<57	<110	--	--	--	--	--	--	--	4.1	<0.73	27	--	6.4	0.048
G6	G6-8.5	8.5	6/5/2014	28	130	530	5	<280	2,500	<0.012	<0.029	<0.029	<0.029	7.4	<0.90	17	--	23	0.054
G7	G7-1.5-060414	1.5	6/4/2014	<220	<540	2,100	--	100	1,000	--	--	--	--	5.4	<1.0	27	--	13	0.038
	G7-3.0-060414	3	6/4/2014	--	--	--	--	39	430	--	--	--	--	--	--	--	--	--	--
G8	G8-1.5-060314	1.5	6/3/2014	47	210	1,200	36	330	3,800	<0.014	0.17	0.079	0.44	4.9	<0.80	16	--	18	0.070
G9-N	G9-1.5-060314	1.5	6/3/2014	260	960	5,000	7	430	5,400	0.026	<0.05	<0.05	<0.05	11	<1.2	36	--	48	0.19
	G9-6.0-060314	6	6/3/2014	--	--	--	<2.5	<26	<53	<0.0099	<0.025	<0.025	<0.025	--	--	--	--	--	--
H2	H2-2.2-060414	2.2	6/4/2014	<23	<56	220	--	<29	100	--	--	--	--	6.1	<0.81	20	--	13	0.037
H3	H3-4.0-060414	4	6/4/2014	<20	<51	<100	--	--	--	--	--	--	--	2.3	<0.77	16	--	1.9	0.014
H4	H4--5.0-060414	-5	6/4/2014	<20	<51	<100	--	<25	<51	--	--	--	--	2.6	<0.65	16	--	1.7	0.021
H5	H5-2.0-060414	2	6/4/2014	<1,100	<2,700	21,000	--	1,500	18,000	<0.0013	0.0041	<0.0013	<0.0027	5.0	<0.92	32	--	39	0.042
	H5-3.5-060414	3.5	6/4/2014	--	--	--	--	<28	<56	<0.00099	<0.0020	<0.00099	<0.0020	--	--	--	--	--	--
H6	H6-1.5-60414	1.5	6/4/2014	<270	800	5,400	--	760	3,300	--	--	--	--	30	<1.2	33	--	140	0.65
	H6-4.0-60414	4	6/4/2014	--	--	--	--	<26	<51	--	--	--	--	--	--	--	--	--	--
H7	H7-1.5-060414	1.5	6/4/2014	<23	85	430	--	70	450	--	--	--	--	6.5	<1.1	220	--	22	0.057
H8	H8-6.0-060314	6	6/3/2014	<23	<56	<110	--	--	--	--	--	--	--	2.8	<0.66	20	--	3.5	0.044
H9-N	H9-N-1.5-060314	N-1.5	6/3/2014	<24	75	270	--	82	590	--	--	--	--	6.0	<0.75	19	--	23	0.058
I2	I2-3.5-060514	3.5	6/5/2014	<20	110	1,000	--	<25	<50	--	--	--	--	<2.0	<0.66	12	--	10	0.044
I3	I3-2.5-060414	2.5	6/4/2014	81	130	390	95	140	380	<0.013	<0.031	<0.031	<0.031	<3.1	<1.0	43	--	1.7	0.016
I4	I4-4.0-060414	4	6/4/2014	<21	<53	<110	--	--	--	--	--	--	--	3.1	<0.98	17	--	3.7	0.026
I5	I5-3.0-060414	3	6/4/2014	<22	<56	<110	--	--	--	--	--	--	--	4.2	<0.80	25	--	5.6	0.045
I6	I6-1.5-060414	1.5	6/4/2014	54	430	2,700	14	490	3,500	<0.021	0.066	<0.052	0.20	25	<1.1	35	--	150	0.37
	I6-3.0-060414	3	6/4/2014	--	--	--	<3.0	<28	77	<0.012	<0.03	<0.03	<0.03	--	--	--	--	--	--
I7	I7-2.0-060314	2	6/3/2014	56	630	4,100	<6.9	<380	2,400	<0.027	<0.069	<0.069	<0.069	12	<1.4	24	--	36	0.13
	I7-4.0-060314	4	6/3/2014	--	--	--	<2.2	<26	<52	<0.0088	<0.022	<0.022	<0.022	--	--	--	--	--	--
I8	I8-3.0-060314	3	6/3/2014	<20	<50	<100	--	--	--	--	--	--	--	<2.9	<0.98	17	--	2.0	<0.015
Earth Berm Test Pits																			
B9	B9-5.0-060314	5	6/3/2014	39	260	1,100	12	<350	2,500	<0.021	<0.053	<0.053	<0.053	8.5	<1.2	53	--	81	0.45
C9	C9-5.0-060314	5	6/3/2014	<320	<800	1,900	--	450	9,600	--	--	--	--	29	<1.6	24	--	120	1.5
D9	D9-5.0-060314	5	6/3/2014	<30	250	1,300	--	660	3,300	--	--	--	--	14	<1.3	34	--	110	1.0
E9	E9-5.0-060314	5	6/3/2014	<22	<55	<110	--	--	--	--	--	--	--	2.9	<0.91	24	--	6.4	0.048
F9	F9-5.0-060314	5	6/3/2014	<310	<780	1,900	--	1,400	5,500	--	--	--	--	21	9.1	36	--	220	0.97
G9	G9-5.0-060314	5	6/3/2014	36	<58	130	40	160	320	<0.014	<0.034	<0.034	<0.034	<3.5	<1.2	58	--	9.4	0.029
H1	H1-2.0-060514	5	6/3/2014	<26	<65	<130	--	--	--	--	--	--	--	18	<0.97	30	--	69	0.13
H9	H9-5.0-060314	5	6/3/2014	<250	<630	1,600	--	<310	3,900	--	--	--	--	9.9	<1.2	27	--	51	0.17
I1	I1-5.0-060314	5	6/3/2014	54	550	3,000	<17	470	4,800	<0.067	<0.17	<0.17	<0.17	9.2	<1.4	27	--	27	0.097
I9	I9-5.0-060314	5	6/3/2014	<27	240	1,700	--	190	1,600	--	--	--	--	9.3	<1.2	21	--	67	0.65
J2	J2-5.0-060314	5	6/3/2014	54	660	4,000	<6.0	380	4,100	<0.024	<0.06	<0.06	<0.06	13	<1.3	19	--	160	0.52
J3	J3-5.0-060314	5	6/3/2014	28	<69	<140	38	--	--	<0.023	<0.058	<0.058	<0.058	<4.1	<1.4	39	--	14	0.10
J4	J4-5.0-060314	5	6/3/2014	260	1,400	7,000	35	1,800	18,000	<0.031	<0.077	0.14	0.48	14	<1.2	27	--	75	0.60

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling 32300 148th Ave. SE Auburn, WA																			
Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	HCID			Gasoline TPH ¹ (mg/kg)	Diesel ² (mg/kg)	Heavy Oil (mg/kg)	Select Volatile Organic Constituents (mg/kg)				Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
				Gasoline	Diesel	Heavy Oil				Benzene	Toluene	Ethylbenzene	Total Xylenes						
J5	J5-5.0-060314	5	6/3/2014	34	420	2,600	<5.3	<360	2,700	<0.021	<0.053	<0.053	<0.053	27	<1.3	43	--	76	0.40
J6	J6-5.0-060314	5	6/3/2014	64	1,600	990	30	1,800	18,000	<0.061	<0.15	<0.15	<0.15	7.6	<1.4	21	--	82	0.11
J7	J7-5.0-060314	5	6/3/2014	39	400	2,700	9	280	2,100	<0.024	<0.06	<0.06	<0.06	12	<1.3	36	--	190	0.45
J8	J8-5.0-060314	5	6/3/2014	30	110	470	19	120	840	<0.015	<0.038	<0.038	<0.038	4.8	<1.0	56	--	27	0.15
Farallon ORO Verification and Distribution Investigation Northern Trench																			
TP-1	TP-1-G3-4.0-060214	4	6/2/2014	--	--	--	--	370	3,600	--	--	--	--	--	--	--	--	--	--
	TP-1-G3-6.0-060214	6	6/2/2014	--	--	--	--	<25	<51	--	--	--	--	--	--	--	--	--	--
TP-2	TP-2-G3-1.0-060214	1	6/2/2014	--	--	--	--	260	2,500	--	--	--	--	--	--	--	--	--	--
	TP-2-G3-2.0-060214	2	6/2/2014	--	--	--	--	<25	<51	--	--	--	--	--	--	--	--	--	--
TP-3	TP-3-G4-4.0-060214	4	6/2/2014	--	--	--	--	700	7,100	<0.0017	0.012	0.007	0.030	--	--	--	--	--	--
	TP-3-G4-9.0-060214	9	6/2/2014	--	--	--	--	<26	<52	--	--	--	--	--	--	--	--	--	--
TP-4	TP-4-G4-9.0-060214	9	6/2/2014	--	--	--	--	<28	<55	--	--	--	--	--	--	--	--	--	--
TP-5	TP-5-G4-6.0-060214	6	6/2/2014	--	--	--	--	<27	72	--	--	--	--	--	--	--	--	--	--
TP-6	TP-6-G4-5.0-060214	5	6/2/2014	--	--	--	--	220	2,900	--	--	--	--	--	--	--	--	--	--
Farallon ORO Verification and Distribution Investigation - Southern Trench and Test Pits																			
TP-7-CEN-E	TP-7-CEN-E-1.5-060314	1.5	6/3/2014	--	--	--	15	1,200	7,600	0.002	0.078	0.029	0.154	--	--	--	--	--	--
	TP-7-CEN-E-3.0-060314	3	6/3/2014	--	--	--	<2.1	<26	<52	<0.00093	<0.0019	<0.00093	<0.0019	--	--	--	--	--	--
TP-7-E	TP-7-E-2.0-060214	2	6/2/2014	--	--	--	--	1,800	19,000	--	--	--	--	--	--	--	--	--	--
TP-7-CEN	TP-7-CEN-2.0-060214	2	6/2/2014	--	--	--	--	<27	<54	<0.017	<0.041	<0.041	<0.041	--	--	--	--	--	--
	TP-7-CEN-5.0-060514	5	6/5/2014	--	--	--	--	<28	100	<0.0010	<0.0020	<0.0010	<0.0020	--	--	--	--	--	--
TP-7-N	TP-7-N-1.0-060214	1	6/2/2014	--	--	--	--	1,500	5,000	<0.035	0.160	<0.087	0.140	--	--	--	--	--	--
	TP-7-N-5.0-060514	5	6/5/2014	--	--	--	--	<27	71	--	--	--	--	--	--	--	--	--	--
TP-7-SW	TP-7-SW-1.0-060214	1	6/2/2014	--	--	--	--	380	2,400	--	--	--	--	--	--	--	--	--	--
	TP-7-SW-060514	0	6/5/2014	--	--	--	--	27	450	--	--	--	--	--	--	--	--	--	--
TP-7-W	TP-7-W-2.0-060214	2	6/2/2014	--	--	--	--	<26	54	--	--	--	--	--	--	--	--	--	--
TP-8	TP-8-1.5-060314	1.5	6/3/2014	--	--	--	7.0	370	2,600	<0.017	0.077	<0.042	0.180	--	--	--	--	--	--
	TP-8-7.0-060514	7	6/5/2014	--	--	--	<2.3	<26	<52	<0.0090	<0.022	<0.022	<0.022	--	--	--	--	--	--
TP-9	TP-9-8.0-060514	8	6/5/2014	--	--	--	--	<28	67	--	--	--	--	--	--	--	--	--	--
TP-10	TP-10-6.0-060314	6	6/3/2014	--	--	--	<2.0	<25	<51	<0.0082	<0.02	<0.02	<0.02	--	--	--	--	--	--
Laboratory Detection Limit							10	50	250	0.02	0.01 / 0.03	0.03 / 0.05	0.03 / 0.15	1	1	1	0.5	1	1
Ecology MTCA Method A Cleanup Levels				100	2000.00	2000.00	30 ³	2,000	2,000	0.03	7	6	9	20	2	19/2,000 ⁴	19	250	2

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	PAHs (EPA 8270D SIM) (mg/kg)																cPAHs TEQ as Benzo (a) Pyrene	SVOCs (EPA 8270D)	pH		
				Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Indeno (1,2,3-cd) pyrene	Dibenz (a,h) anthracene	Benzo (g,h,i) perylene					
E8	E8A-2	2	4/25/2018	--	--	--	--	--	--	--	--	<2	<2	<2	<2	<2	<2	--	<2	--	8.1			
F6	F6-1F	1	4/25/2018	--	--	--	--	--	--	--	--	<0.1J	0.10J	<0.1J	0.18J	<0.1J	<0.1J	--	0.019	--	7.7			
	F6-3N	3	4/25/2018	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	7.6			
G2	G2A-3F	3	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	7.2		
	G2A-4N	4	1/24/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.7		
H3	H3A-2F	2	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	0.11	<0.1J	0.13	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	0.01	ND	8.3	
	H3A-4N	4	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	8.2		
H4	H4A-2F	2	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.27 J	<0.1J	0.12	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	0.0012	ND	10	
	H4A-3N	3	1/24/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.2		
H5	H5A-2F	2.0	1/24/2018	20	<2	19	16	170	33	130	150	50	55	53	60	21	19	3.9	15	68.9	ND	7.8		
	H5A-5N	5	1/24/2018	<0.01	<0.01	<0.01	<0.01	0.038	<0.01	0.030	0.033	0.012	0.013	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	0.002	ND	8.1	
	H5B-3	3	4/25/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.6		
H6	G6A-2F	2	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.19	<0.1	0.16	<0.1J	0.13	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	0.015	ND	8.3	
	G6A-7N	7	1/24/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.2	
H7	H7A-3F	3	4/25/2018	--	--	--	--	--	--	--	--	0.013	0.021	0.011J	0.026J	<0.1J	<0.1J	<0.1J	--	0.015	--	7.5		
	H7A-6N	6	4/25/2018	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01	--	7.6		
H8	G8A-2F	2	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	7.8	
	G8A-3N	3	1/24/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.6	
H9	E9A-1F	1	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	ND	7.6	
	E9A-2N	2	1/24/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.8	
D9	D9A-2F	2	1/24/2018	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2J	<2J	<2J	<2J	<2J	<2J	<2J	>0.1	ND	7.5	
	D9A-3N	3	1/24/2018	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	<0.1J	<0.01	ND	7.6	
				Langseth Test Pits																				
TP1 (D7)	1	2 1/2'	12/30/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.09		
TP2 (E7)	2	2'	12/30/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.09		
5 Pond (F7)	3	Surface	12/30/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.9		
T1 SE (Trench 1) (D9)	4	18"	12/30/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.12		
T 2 (G9)	5	Fill material	12/30/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.5		
T 3 (I8,9)	6	2'	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.17		
T 5 (J6)	7	At concrete Rubble	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.88		
T 6 (J4)	8	Grab Suspect Concrete fines	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.46		
WP1 (NW pond 1)(E2)	9	Outflow	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.21		
WP2 (N middle Pond) (F2)	10	Center surface	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.25		
WP3 (NE pond)	11	inflow	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.11		
T10 (Suspect PCS)(G5)	12	6'	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.85		
T 10 (North Excavated) (G4)	13		12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.4		
T 10 (Middle Excavated) (G4)	14		12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.09		
T 11 (suspect PCS) (F5)	15	3 1/2'	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.42		
T 12 (NW wood debris area) (D3)	16	1'	12/31/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.39		
				Farallon Test Pits Baseline Site Conditions																				
A5	A5-1.9-060514	1.9	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
B3	B3-6.0-060514	6	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
C1	C1-3.0-060514	3	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
C4	C4-5.0-060514	5	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
D2	D2-3.0-060514	3	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
D3	D3-1.5-060514	1.5	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
D7	D7-3.0-060514	3	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
D8	D8-3.0-060514	3	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
E1	E1-1.9-060514	1.9	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
E2	E2-1.5-060514	1.5	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
E3	E3-3.0-060514	3	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
E7	E7-1.5-060314	1.5	6/3/2014	--	--	--	--	--	--	--	--	0.35	0.56	0.73	0.52	<0.15	<0.23	<0.23	--	0.850	--	--		
	E7-4.0-060314	4	6/3/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.042	<0.042	--	0.023	--	--		
E8	E8-2.5-060314'	2.5	6/3/2014	--	--	--	--	--	--	--	--	0.49	2.8	1.8	3.1	<0.55	<0.89	<0.89	--	2.300	--	--		
	E8-3.5-060314	3.5	6/3/2014	--	--	--	--	--	--	--	--	<0.022	<0.027	<0.033	<0.022	<0.027	<0.044	<0.044	--	0.020	--	--		
F1	F1-3.0-.60314	3	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--									

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	PAHs (EPA 8270D SIM) (mg/kg)																cPAHs TEQ as Benzo (a) Pyrene	SVOCs (EPA 8270D)	pH
				Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Indeno (1,2,3-cd) pyrene	Dibenz (a,h) anthracene	Benzo (g,h,i) perylene			
F2	F2-1.0-060414	1	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
F3	F3-1.5-060414	1.5	6/4/2014	--	--	--	--	--	--	--	--	0.23	0.8	0.82	<0.22	<0.27	<0.44	<0.44	--	0.920	--	--
	F3-3.0-060414	3	6/4/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.041	<0.041	--	0.023	--	--
F7	F7-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
F8	F8-2.5-060314	2.5	6/3/2014	--	--	--	--	--	--	--	--	<4.5	<5.7	<6.8	<4.5	<5.7	<9	<9	--	5.100	--	--
	F8-3.5-060314	3.5	6/3/2014	--	--	--	--	--	--	--	--	<0.11	<0.14	<0.17	<0.11	<0.14	<0.22	<0.22	--	0.130	--	--
G1	G1-3.0-060414	3	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G2	G2-4.0-060414	4	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G3	G3-2.2	2.2	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G4	G4-1.5	1.5	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G5.6	G5.6-2.5	2.5	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G5	G5-4.0	4	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G6	G6-8.5	8.5	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G7	G7-1.5-060414	1.5	6/4/2014	--	--	--	--	--	--	--	--	<0.11	<0.14	<0.17	<0.11	<0.14	<0.22	<0.22	--	0.130	--	--
	G7-3.0-060414	3	6/4/2014	--	--	--	--	--	--	--	--	<0.02	<0.025	<0.031	<0.02	<0.025	<0.041	<0.041	--	0.023	--	--
G8	G8-1.5-060314	1.5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G9-N	G9-1.5-060314	1.5	6/3/2014	--	--	--	--	--	--	--	--	0.13	0.47	<0.2	0.46	0.37	<0.26	<0.26	--	0.230	--	--
	G9-6.0-060314	6	6/3/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.042	<0.042	--	0.023	--	--
H2	H2-2.2-060414	2.2	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H3	H3-4.0-060414	4	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H4	H4--5.0-060414	-5	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H5	H5-2.0-060414	2	6/4/2014	--	--	--	--	--	--	--	--	0.53	3.2	<0.33	<0.22	<0.27	<0.44	<0.44	--	0.320	--	--
	H5-3.5-060414	3.5	6/4/2014	--	--	--	--	--	--	--	--	<0.022	<0.028	<0.033	<0.023	<0.028	<0.044	<0.044	--	0.020	--	--
H6	H6-1.5-60414	1.5	6/4/2014	--	--	--	--	--	--	--	--	1.3	1.5	1.2	1.2	0.48	0.77	<0.27	--	1.600	--	--
	H6-4.0-60414	4	6/4/2014	--	--	--	--	--	--	--	--	<0.021	<0.027	<0.032	<0.021	<0.027	<0.043	<0.043	--	0.024	--	--
H7	H7-1.5-060414	1.5	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H8	H8-6.0-060314	6	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H9-N	H9-N-1.5-060314	N-1.5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I2	I2-3.5-060514	3.5	6/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I3	I3-2.5-060414	2.5	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I4	I4-4.0-060414	4	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I5	I5-3.0-060414	3	6/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I6	I6-1.5-060414	1.5	6/4/2014	--	--	--	--	--	--	--	--	2.6	2.8	2.2	2.9	1.2	1.5	<0.29	--	0.310	--	--
	I6-3.0-060414	3	6/4/2014	--	--	--	--	--	--	--	--	<0.023	<0.029	<0.034	<0.023	<0.029	<0.046	<0.046	--	0.025	--	--
I7	I7-2.0-060314	2	6/3/2014	--	--	--	--	--	--	--	--	<0.3	<0.38	<0.45	<0.3	<0.38	<0.6	<0.6	--	0.340	--	--
	I7-4.0-060314	4	6/3/2014	--	--	--	--	--	--	--	--	<0.02	<0.026	<0.031	<0.02	<0.026	<0.041	<0.041	--	0.023	--	--
I8	I8-3.0-060314	3	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Farallon Test Pits Baseline Site Conditions																		
B9	B9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
C9	C9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D9	D9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E9	E9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
F9	F9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G9	G9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H1	H1-2.0-060514	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
H9	H9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
I1	I1-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	<0.37	0.53	<0.56	0.49	<0.47	<0.75	<0.75	--	0.450	--	--
I9	I9-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
J2	J2-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	0.83	0.91	1.1	1.6	0.51	<0.6	<0.6	--	1.500	--	--
J3	J3-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
J4	J4-5.0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	0.79	1.4	1.2	0.34	<0.36	<0.58	<0.58	--	1.400	--	--

Table 5: Summary of Test Pit Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	PAHs (EPA 8270D SIM) (mg/kg)																cPAHs TEQ as Benzo (a) Pyrene	SVOCs (EPA 8270D)	pH
				Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Indeno (1,2,3-cd) pyrene	Dibenz (a,h) anthracene	Benzo (g,h,i) perylene			
J5	J5-S-0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	<0.15	<0.18	<0.22	0.18	<0.18	<0.29	<0.29	--	0.170	--	--
J6	J6-S-0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	0.81	1.7	1.7	0.81	<0.36	<0.58	<0.58	--	2.000	--	--
J7	J7-S-0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	<0.029	<0.037	<0.044	<0.029	<0.37	<0.059	<0.059	--	0.033	--	--
J8	J8-S-0-060314	5	6/3/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Farallon ORO Verification and Distribution Investigation Northern Trench																						
TP-1	TP-1-G3-4.0-060214	4	6/2/2014	--	--	--	--	--	--	--	--	<0.63	0.89	<0.94	<0.63	<0.78	<1.3	<1.3	--	0.71	--	--
	TP-1-G3-6.0-060214	6	6/2/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.041	<0.041	--	0.02	--	--
TP-2	TP-2-G3-1.0-060214	1	6/2/2014	--	--	--	--	--	--	--	--	<0.68	<0.85	<1	<0.68	<0.85	<1.4	<1.4	--	0.75	--	--
	TP-2-G3-2.0-060214	2	6/2/2014	--	--	--	--	--	--	--	--	<0.021	<0.027	<0.032	<0.021	<0.027	<0.042	<0.042	--	0.02	--	--
TP-3	TP-3-G4-4.0-060214	4	6/2/2014	--	--	--	--	--	--	--	--	<0.67	<0.83	<1	<0.67	<0.83	<1.3	<1.3	--	0.74	--	--
	TP-3-G4-9.0-060214	9	6/2/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.041	<0.041	--	0.02	--	--
TP-4	TP-4-G4-9.0-060214	9	6/2/2014	--	--	--	--	--	--	--	--	<0.021	<0.027	<0.032	<0.021	<0.027	<0.042	<0.042	--	0.02	--	--
TP-5	TP-5-G4-6.0-060214	6	6/2/2014	--	--	--	--	--	--	--	--	<0.1	<0.13	<0.16	<0.1	<0.13	<0.21	<0.21	--	0.12	--	--
TP-6	TP-6-G4-5.0-060214	5	6/2/2014	--	--	--	--	--	--	--	--	<.53	<0.66	<0.8	<.53	<0.66	<1.1	<1.1	--	0.60	--	--
Farallon ORO Verification and Distribution Investigation - Southern Trench and Test Pits																						
TP-7-CEN-E	TP-7-CEN-E-1.5-060314	1.5	6/3/2014	--	--	--	--	--	--	--	--	3.1	5.2	3.6	4.6	1.6	1.5	<1.5	--	4.80	--	--
	TP-7-CEN-E-3.0-060314	3	6/3/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.042	<0.042	--	0.023	--	--
TP-7-E	TP-7-E-2.0-060214	2	6/2/2014	--	--	--	--	--	--	--	--	<0.023	<0.029	<0.035	<0.023	<0.029	<0.046	<0.046	--	0.03	--	--
TP-7-CEN	TP-7-CEN-2.0-060214	2	6/2/2014	--	--	--	--	--	--	--	--	<0.022	<0.028	<0.034	<0.022	<0.028	<0.045	<0.045	--	0.03	--	--
	TP-7-CEN-5.0-060514	5	6/5/2014	--	--	--	--	--	--	--	--	<0.023	<0.029	<0.035	<0.023	<0.029	<0.046	<0.046	--	0.03	--	--
TP-7-N	TP-7-N-1.0-060214	1	6/2/2014	--	--	--	--	--	--	--	--	<0.63	0.85	<0.95	0.68	<0.79	<1.3	<1.3	--	0.75	--	--
	TP-7-N-5.0-060514	5	6/5/2014	--	--	--	--	--	--	--	--	<0.022	<0.028	<0.033	<0.022	<0.028	<0.044	<0.044	--	0.02	--	--
TP-7-SW	TP-7-SW-1.0-060214	1	6/2/2014	--	--	--	--	--	--	--	--	<0.68	<0.85	<1	<0.68	<0.85	<1.4	<1.4	--	0.75	--	--
	TP-7-SW-060514	0	6/5/2014	--	--	--	--	--	--	--	--	<0.021	<0.026	<0.031	<0.021	<0.026	<0.041	<0.041	--	0.02	--	--
TP-7-W	TP-7-W-2.0-060214	2	6/2/2014	--	--	--	--	--	--	--	--	<0.1	<0.13	<0.16	<0.1	<0.13	<0.21	<0.21	--	0.12	--	--
TP-8	TP-8-1.5-060314	1.5	6/3/2014	--	--	--	--	--	--	--	--	<0.62	<0.77	<0.93	<0.62	<0.77	<1.2	<1.2	--	0.72	--	--
	TP-8-7.0-060514	7	6/5/2014	--	--	--	--	--	--	--	--	<0.022	<0.027	<0.032	<0.022	<0.027	<0.043	<0.043	--	0.02	--	--
TP-9	TP-9-8.0-060514	8	6/5/2014	--	--	--	--	--	--	--	--	<0.023	<0.029	<0.034	<0.023	<0.029	<0.046	<0.046	--	0.03	--	--
TP-10	TP-10-6.0-060314	6	6/3/2014	--	--	--	--	--	--	--	--	<0.2	<0.025	<0.03	<0.02	<0.025	<0.041	<0.041	--	0.02	--	--
Laboratory Detection Limit				0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	0.01/0.1/2	Varies	
Ecology MTCA Method A Cleanup Levels				5	NE	4,800	3,200	NE	24,000	3,200	2,400	1.37	137	0.1	1.37	14	1.37	0.137	NE	0.1	Varies	NE

Notes:

¹Gasoline range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Gx.

²Analyzed by Northwest Method NWTPH-D/Dx Extended

³Cleanup level with presence of benzene

⁴Cleanup level for hexavalent chromium/ Cleanup level for total Chromium Values (Select Samples higher than hexavalent Chromium CUL were analyzed for Hexavalent Chromium)

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

'x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation. (The diesel reported is overlap from the heavy oil range)

< = not detected above laboratory detection limits

NE = Ecology has not designated a MTCA cleanup level for this constituent

Bold indicates a detected concentration that is below Ecology MTCA Method A Cleanup Levels

Bold Red indicates the detected concentration exceeds Ecology MTCA Method A Cleanup Levels

Table 5: Summary of Test Pit Soil Volatile Organic Constituent (VOC) Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location		Sample ID	Sample Depth (ft)	Date Sampled	Select Volatile Organic Constituents										
					Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	cis 1,2-Dichloroethylene (cis-1,2-DCE)	Trans- 1,2-Dichloroethylene (trans-1,2-DCE) (mg/kg)	Vinyl Chloride (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	Naphthalene (mg/kg)	n-Propylbenzene (mg/kg)	p-isopropyltoluene (mg/kg)
Farallon Test Pits Baseline Site Conditions															
E8		E8-2.5-060314'	2.5	6/3/2014	0.0049	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032	<0.0016	<0.0081	<0.0081	<0.0032	<0.0032
		E8-3.5-060314	3.5	6/3/2014	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0023	<0.0011	<0.0057	<0.0057	<0.0023	<0.0023
H5		H5-2.0-060414	2	6/4/2014	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0027	<0.0013	<0.0067	<0.0067	<0.0027	<0.0027
		H5-3.5-060414	3.5	6/4/2014	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.0020	<0.00099	<0.0050	<0.0050	<0.0020	<0.0020
Farallon ORO Verification and Distribution Investigation Northern Trench															
Northern Trench	TP-3	TP-3-G4-4.0-060214	4	6/2/2014	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	0.028	0.071	0.0099	0.021	0.0060	0.013
Farallon ORO Verification and Distribution Investigation - Southern Trench															
Southern Trench	TP-7-CEN-E	TP-7-CEN-E-1.5-060314	1.5	6/3/2014	0.016	<0.0017	<0.0017	<0.0017	<0.0017	0.038	<0.0017	0.016	0.028	0.0083	0.043
		TP-7-CEN-E-3.0-060314	3	6/3/2014	<0.00093	<0.00093	<0.00093	<0.00093	<0.00093	<0.0019	<0.00093	<0.0046	<0.0046	<0.0019	<0.0019
	TP-7-CEN	TP-7-CEN-5.0-060514	5	6/5/2014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0050	<0.0050	<0.0020	<0.0020
Ecology MTCA Method A or B Cleanup Levels					0.05	0.03	160	1,600	240	NE	11	800	5	8,000	NE

Notes:
mg/kg = Milligrams per kilogram
MTCA = Model Toxics Control Act
-- = not analyzed for this constituent
< = not detected above laboratory detection limits
NE = Ecology has not designated a MTCA cleanup level for this constituent
Bold indicates a detected concentration that is below Ecology MTCA Method A Cleanup Levels
Bold Red indicates the detected concentration exceeds Ecology MTCA Method A Cleanup Levels

Table 6: Summary of ECI Probe Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Sample ID	Sample Depth (ft)	Date Sampled	Gasoline TPH ² (mg/kg)	Diesel (mg/kg)	Heavy Oil (mg/kg)	Select Volatile Organic Constituents ³ (mg/kg)				Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
						Benzene	Toluene	Ethylbenzene	Total Xylenes						
C7-12	12	1/26/2018	<5	<50	<250	--	--	--	--	3.62	<1	10.5	--	4.42	<1
C7-16	16	1/26/2018	<5	<50	680	--	--	--	--	3.37	<1	16.1	--	4.07	<1
C6-8	8	1/26/2018	<5	<50	<250	--	--	--	--	2.71	<1	10.2	--	1.66	<1
C6-12	16	1/26/2018	<5	<50	<250	--	--	--	--	3.14	<1	11.9	--	2.11	<1
B7-2	2	1/26/2018	<5	<50	<250	--	--	--	--	2.67	<1	11.8	--	2.53	<1
B7-8	8	1/26/2018	<5	<50	<250	--	--	--	--	1.94	<1	14.3	--	1.31	<1
B5-3F	3	1/26/2018	<5	<50	<250	--	--	--	--	3.23	<1	12.4	--	3.85	<1
B5-7N	7	1/26/2018	<5	<50	<250	--	--	--	--	3.35	<1	13.8	--	2.51	<1
C5-3F	3	1/26/2018	<5	570	430	--	--	--	--	11.9	<1	6.78	--	7.99	<1
C5-11N	11	1/26/2018	--	<50	610	--	--	--	--	2.73	<1	10.7	--	1.93	<1
D4-3F	3	1/26/2018	--	<50	<250	--	--	--	--	3.28	<1	12.2	<0.5	2.29	<1
D4-8N	8	1/26/2018	--	<50	<250	--	--	--	--	2.41	<1	9.42	<0.5	2.19	<1
E4-2F	2	1/26/2018	--	<50	<250	--	--	--	--	2.66	<1	12.8	--	2.75	<1
E4-5N	5	1/26/2018	--	<50	<250	--	--	--	--	3.32	<1	10.3	--	2.07	<1
F4N-2F	2	1/26/2018	--	<50	<250	--	--	--	--	2.06	<1	31.7	<0.5	4.60	<1
F4N-6N	6	1/26/2018	--	<50	<250	--	--	--	--	3.39	<1	20.2	<0.5	2.49	<1
F4S-2F	2.0	1/26/2018	--	78x	570	--	--	--	--	8.28	<1	17.6	--	31.6	<1
F4S-5N	5	1/26/2018	--	<50	<250	--	--	--	--	2.75	<1	11.3	--	2.10	<1
F6-2F	2	1/26/2018	--	100x	<250	--	--	--	--	29.5	<1	16.4	--	29.9	<1
F6-5N	5	1/26/2018	--	<50	<250	--	--	--	--	2.10	<1	10.5	--	1.98	<1
E7N-2F	2	1/26/2018	--	<50	<250	--	--	--	--	3.18	<1	9.88	--	3.65	<1
E7N-8N	8	1/26/2018	--	<50	<250	--	--	--	--	3.31	<1	14.3	--	4.00	<1
D8N-2F	2	1/26/2018	--	69x	740	--	--	--	--	7.29	<1	20.5	<0.6	9.09	<1
D8N-7N	7	1/26/2018	--	<50	<250	--	--	--	--	3.77	<1	10.2	--	5.57	<1
Laboratory Detection Limit			5	50	250	0.02	0.01 / 0.03	0.03 / 0.05	0.03 / 0.15	1	1	1	0.5	1	1
Ecology MTCA Method A Cleanup Levels			30	2,000	2,000	0.03	7	6	9	20	2	19	19	250	2

Notes:

²Gasoline range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Gx.

³Select Volatile Organic Compounds. Analyzed by EPA Method 8021B.

⁴Analyzed by Northwest Method NWTPH-D/Dx Extended

⁶Cleanup level with presence of benzene

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act

-- = not analyzed for this constituent

< = not detected above laboratory detection limits

NE = Ecology has not designated a MTCA Method A cleanup level for this constituent

Bold indicates a detected concentration that is below Ecology MTCA Method A Cleanup Levels

Bold and Shaded indicates the detected concentration exceeds Ecology MTCA Method A or B Cleanup Levels

Table 6: Summary of ECI Probe Soil Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Sample ID	Sample Depth (ft)	Date Sampled	Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270D SIM) (mg/kg)																cPAHs TEQ as Benzo (a) Pyrene	SVOCs (EPA 8270D)	pH
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Indeno (1,2,3-cd) pyrene	Dibenz (a,h) anthracene	Benzo (g,h,i) perylene			
C7-12	12	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.1	ND	7.7
C7-16	16	1/26/2018	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.022	0.030	<0.02	0.026	<0.02J	0.032	<0.02J	<0.02J	<0.02J	<0.02J	0.0035	ND	7.7
C6-8	8	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.7
C6-12	16	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.6
B7-2	2	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.4
B7-8	8	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.6
B5-3F	3	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	9.5
B5-7N	7	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	11.0
C5-3F	3	1/26/2018	<0.01	<0.01	<0.01	<0.01	0.059	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	9.5
C5-11N	11	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.01	ND	9.8
D4-3F	3	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.4
D4-8N	8	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.2
E4-2F	2	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.7
E4-5N	5	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.4
F4N-2F	2	1/26/2018	0.500	<0.01	<0.01	<0.01	0.036	<0.01	0.011	0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	12.0
F4N-6N	6	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.8
F4S-2F	2.0	1/26/2018	<0.01	<0.01	<0.01	<0.01	0.032	<0.01	0.089	0.120	0.049	0.066	0.07	0.14	0.046	0.033	<0.01J	0.03	0.0975	ND	8.5
F4S-5N	5	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.1
F6-2F	2	1/26/2018	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	0.032	0.032	0.012	0.019	0.017	0.033	<0.01	<0.01	<0.01	<0.01	0.0217	ND	7.8
F6-5N	5	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.8
E7N-2F	2	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.5
E7N-8N	8	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	7.6
D8N-2F	2	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	<0.01	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.01J	<0.01	ND	12.0
D8N-7N	7	1/26/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	8.5
Laboratory Detection Limit			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01/0.1/2	Varies	
Ecology MTCA Method A Cleanup Levels			5	NE	4,800	3,200	NE	24,000	3,200	2,400	1.37	137	0.1	1.37	14	1.37	0.137	NE	0.1	Varies	NE

Notes:
²Gasoline range total petroleum hydrocarbons (TPH). ⁴
³Select Volatile Organic Compounds. Analyzed by EPA I
⁴Analyzed by Northwest Method NWTPH-D/Dx Extende
⁴Cleanup level with presence of benzene
mg/kg = Milligrams per kilogram
MTCA = Model Toxics Control Act
-- = not analyzed for this constituent
< = not detected above laboratory detection limits
NE = Ecology has not designated a MTCA Method A cle:
Bold indicates a detected concentration that is below E
Bold and Shaded indicates the detected concentration

Table 7: Summary of Groundwater Elevations
Glacier Recycling
32300 148th Ave. SE Auburn, WA

Well Number/ Top of PVC well Casing Elevation (feet)	Elevation Top of monument casing with lid on (feet)	Elevation Top of monument casing (feet)	Elevation Ground Surface (feet)	State Plane Coordinate		Latitude/ Longitude		Date of Measurement	Depth to Water (feet)	Groundwater Elevation (feet)	Change in Elevation (feet)
				Easting	Northing	Latitude	Longitude				
MW1	382.53	382.49	378.73	1315691.75	117237.77	N47.31382746	W122.14239043	02/05/18	31.61	350.67	--
382.28								05/07/18	41.26	341.02	-9.65
MW2	382.57	382.58	378.89	1316113.53	117237.14	N47.31384538	W122.14069040	02/05/18	33.98	348.40	--
382.38								05/07/18	38.39	343.99	-4.41
MW3	378.69	378.68	378.27	1316274.15	116466.45	N47.31174035	W122.139990301	02/05/18	24.64	353.54	--
378.18								05/07/18	27.22	350.96	-2.58

Notes:

TOC = Top of casing elevation relative to assigned benchmark.

-- = Not measured, not available, or not applicable

Well Number	Date Sampled	Total Petroleum Hydrocarbons (µg/l)			Total Metals								Dissolved Metals							
		Gasoline	Diesel	Heavy Oil	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Zinc	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Zinc
MW1	2/5/2018	<100	<50	<250	<1	<1	10.6	<5	<1	40.6	<1	<5	<1	<1	<1	<5	<1	17.4	<1	<5
	5/7/2018	<100	<50	<250	<1	<1	15.3	<5	<1	26.9	<1	<5	<1	<1	<1	<5	<1	6.85	<1	<5
MW2	2/5/2018	<100	<50	<250	<1	<1	14.1	<5	<1	40.0	<1	<5	<1	<1	<1	<5	<1	18.1	<1	<5
	5/7/2018	<100	<50	<250	<1	<1	14.3	<5	<1	27.4	<1	<5	<1	<1	<1	<5	<1	15.3	<1	<5
MW3	2/5/2018	<100	<50	<250	<1	<1	10.1	<5	<1	39.5	<1	<5	<1	<1	<1	<5	<1	20.3	<1	<5
	5/7/2018	<100	<50	<250	1.35	<1	17.3	<5	<1	70.0	<1	5.4	<1	<1	<1	<5	<1	11.9	<1	<5
Perched Water																				
C5-GW*	1/26/2018	<100	190	<250	7.61	<1	10.8	17.6	6.76	151	<1	34.8	2.58	<1	<1	<5	<1	<1	<1	<5
Laboratory Detection Limit		100	50	250	1	1	1	5	1	1	1	5	1	1	1	5	1	1	1	5
Ecology MTCA Method A Cleanup Levels		800/1,000	500	500	5	5	50	4.64**	15	50**	2	35.4**	5	5	50	4.64**	15	50**	2	35.4**

"Notes:
(µg/l) = micrograms per liter
-- Not analyzed for constituent
< Not detected above the laboratory reporting limit
Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level
Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels
¹ TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site
* = Perched water (leachate?)
** freshwater water quality criteria
*** = secondary MCL
NE = Not established
"

Table 8: Summary of Groundwater Analytical Results
Glacier

32300 148th Ave. SE Auburn, WA

Well Number	Date Sampled	Select Semi-Volatile Organic Compounds (µg/l)																Phthalates (µg/L)						Conventional Inorganics			
		Polycyclic Aeromatic Hydrocarbons (PAHs)									Carcinogenic PAHs																
		Napthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (g,h,i) Perylene	Benzo (a) anthracene	Chrysene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (k) Fluoranthene	Ideno (1,2,3-cd) Pyrene	Dibeno (a,h) Anthracene	Dimethyl phthalate	Diethyl phthalate	Di-n-butyl phthalate	Benzel butyl phthalate	Bis (2-ethylhexil) phthalate	Di-n-octyl phthalate	pH	Total Dissolved Solids (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)
MW1	2/5/2018	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<2	<2	<2	<2	<3.2	<2	6.1	357	184	<0.5	
	5/7/2018	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<4	<4	<4	<4	<6.4	<4	6.0	140	42	<0.5	
MW2	2/5/2018	<0.03	<0.03	<0.03	<0.03	0.033	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<2	<2	<2	<2	<3.2	<2	6.2	361	185	<0.5	
	5/7/2018	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<4	<4	<4	<4	<6.4	<4	6.0	110	42	<0.5	
MW3	2/5/2018	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<2	<2	<2	<2	<3.2	<2	6.2	362	185	<0.5	
	5/7/2018	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<4	<4	<4	<4	<6.4	<4	6.1	146	41	<0.5	
		Perched Water																									
C5-GW*	1/26/2018	<0.03	<0.03	<0.03	<0.03	0.12	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<2	<2	<2	<2	<3.2	<2	8.9	250	10	--	
Laboratory Detection Limit		0.03	0.0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	2	2	2	2	3.2	2		5.00	6.00	6.00	
Ecology MTCA Method A Cleanup Levels		160	NE	960	640	NE	4,800	640	480	NE	0.12	12	0.1	0.12	1	0.12	270,000*	12,800	160	3,200	320	160	NE	500***	250***	6.00	

"Notes:
(µg/l) = micrograms per lite
-- Not analyzed for constitu
< Not detected above the la
Red Bold indicates the detec
Bold indicates the detected
1 TPH-Gasoline Cleanup Le
* = Perched water (leachate
** freshwater water quality
*** = secondary MCL
NE = Not established
"

Table 9: Summary of Test Pit Soil EPH/VPH Analytical Results

Glacier Recycling

32300 148th Ave. SE Auburn, WA

Grid Location	Sample ID	Sample Depth (ft)	Date Sampled	Extractable Petroleum Hydrocarbons (EPH) ¹										Volatile Petroleum Hydrocarbons (VPH) ²													Percent Moisture (Wt %) ⁴	
				Aliphatic Hydrocarbons (mg/kg - dry) ³					Aromatic Hydrocarbons (mg/kg - dry) ³					Aliphatic Hydrocarbons (mg/kg - dry) ³				Aromatic Hydrocarbons (mg/kg - dry) ³			Volatile Organics (mg/kg - dry) ³							
				C8 - C10	C10 - C12	C12 - C16	C16 - C21	C21 - C34	C8 - C10	C10 - C12	C12 - C16	C16 - C21	C21 - C34	C5 - C6	C6 - C8	C8 - C10	C10 - C12	C8 - C10	C10 - C12	C12 - C13	Benzene	Ethylbenzene	Toluene	M,P-Xylene	O- Xylene	Naphthalene		Methyl tert-butyl ether (MTBE)
E8	E8A-2	2	4/25/2018	<22.8	<11.4	<11.4	25.6	1,130	<11.4	<11.4	<11.4	14.4	980	<2.43	<3.48	<1.95	<2.09	<4.17	5.86	<0.974 Q*	<0.835	<0.974	<0.974	<1.81	<0.865	<0.696 Q	<0.696 Q	12.6
H5	H5B-3	3	4/25/2018	<24.8 *	<12.4	<12.4	56.2	1,000	<12.4	<12.4	<12.4	33.7	484	3.98	<3.92	2.69	9.38	8.81	30.1	<11.0 Q*	<0.941	<1.10	<1.10	<2.04	<0.941	<0.784 Q	<0.784 Q	29.0
Laboratory Reporting Limit				22.8/24.8	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	11.4/12.4	2.43/2.74	3.48/3.92	1.95/2.20	2.09/2.35	4.17/4.71	0.835/0.941	9.74/11.0	0.835/0.941	0.974/1.10	0.974/1.10	1.81/2.04	0.835/0.941	0.696/0.784	0.696/0.784	0.500

Notes:

¹ Samples Analyzed by Method NWEPH

² Samples Analyzed by Method NWVPH

³ mg/kg = Milligrams per kilogram

⁴ Wt % = Weight percent

* = Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

Q = Flagged value is not within established control limits

-- = not analyzed for this constituent

Bold indicates a detected concentration that is below Ecology MTCA Method A Cleanup Levels

Bold Red indicates the detected concentration exceeds Ecology MTCA Method A Cleanup Levels

Appendix C: Test Pit and Boring Logs

Appendix C

Test Pit and Boring Logs

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: G2A	
					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Date: 1/24/2018					Project Number: 0676-01-02			
Logged by: Kaden Reed					Client: Glacier Recycle			
Checked By:					Test Pit Location: See Appendix A, Figure 3			
Contractor: ECI					Excavation Method: Back hoe			
Weather: Overcast with rain					Test Pit Size:		Length	Width
					3 feet		3 feet	
					Water Level:		None encountered	
					Material Description			
					Surface Conditions:		Concrete debris	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Brown, sandy silt with concrete debris Dark brown/black charcoal and wood fragments Brown, silty sand with cobble Termination of test pit			
0								
1								
2								
3	9:30 AM		G2A-3F					
4	9:35 AM		G2A-4N					
5								
6								
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: H3A	
					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Date: 1/24/2018					Project Number: 0676-01-02			
Logged by: Kaden Reed					Client: Glacier Recycle			
Checked By:					Test Pit Location: See Appendix A, Figure 3			
Contractor: ECI					Excavation Method: Back hoe			
Weather: Overcast with rain					Test Pit Size:		Length	Width
					3 feet		3 feet	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level: None encountered			
					Material Description			
					Surface Conditions: Concrete debris and roofing tiles			
0					Brown, sandy silt with concrete debris			
1								
2	10:00 AM		H3A-2F					
3					Dark brown/black charcoal and wood fragments			
4	10:05 AM		H3A-4N		Brown, silty sand with cobble			
5					Termination of test pit			
6								
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project:	FSI	Test Pit ID:	H5A
					Project Location:	32300 148th Avenue Southeast, Auburn, Washington		
Date:		1/24/2018			Project Number:	0676-01-02		
Logged by:		Kaden Reed			Client:	Glacier Recycle		
Checked By:					Test Pit Location:	See Appendix A, Figure 3		
Contractor:		ECI			Excavation Method:	Back hoe		
Weather:		Overcast with rain			Test Pit Size:	Length	Width	
						3 feet	3 feet	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level:	None encountered		
					Material Description			
					Surface Conditions:	Concrete debris		
0					Brown, sandy silt with concrete debris			
1								
2	10:25 AM		H5A-2F					
3					Dark brown/black charcoal and wood fragments with a very strong hydrogen sulfide odor			
4								
5	10:35 AM		H5A-5N		Dark brown, sandy silt with concrete debris			
6					Brown, silty sand with cobble			
7					Termination of test pit			
8								
9								
10								
Notes: 								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project:	FSI	Test Pit ID:	H4A
					Project Location:	32300 148th Avenue Southeast, Auburn, Washington		
Date:		1/24/2018			Project Number:	0676-01-02		
Logged by:		Kaden Reed			Client:	Glacier Recycle		
Checked By:					Test Pit Location:	See Appendix A, Figure 3		
Contractor:		ECI			Excavation Method:	Back hoe		
Weather:		Overcast with rain			Test Pit Size:	Length	Width	
						3 feet	3 feet	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level:	None encountered		
					Material Description			
					Surface Conditions:	Concrete debris		
0					Brown, sandy silt with concrete debris			
1								
2	11:15 AM		H4A-2F		Dark brown/black charcoal and wood fragments			
3	11:25 AM		H4A-3N					
4					Brown, silty sand with cobble			
5								
6					Termination of test pit			
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: G6A	
					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Date: 1/24/2018					Project Number: 0676-01-02			
Logged by: Kaden Reed					Client: Glacier Recycle			
Checked By:					Test Pit Location: See Appendix A, Figure 3			
Contractor: ECI					Excavation Method: Back hoe			
Weather: Overcast with rain					Test Pit Size:		Length	Width
					3 feet		3 feet	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level: None encountered			
					Material Description			
					Surface Conditions: Concrete debris			
					Brown, sandy silt with concrete debris			
0					Dark brown/black charcoal and wood fragments			
1								
2	12:05 PM		G6A-2F					
3								
4								
5					Brown, silty sand with cobble			
6								
7	12:15 PM		G6A-7N					
8								
9								
10					Termination of test pit			
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: G8A	
					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Date: 1/24/2018					Project Number: 0676-01-02			
Logged by: Kaden Reed					Client: Glacier Recycle			
Checked By:					Test Pit Location: See Appendix A, Figure 3			
Contractor: ECI					Excavation Method: Back hoe			
Weather: Overcast with rain					Test Pit Size:		Length	Width
					3 feet		3 feet	
Depth (feet)		Time		Sample Type	Sample Number	Graphic Log		
						Water Level: None encountered		
						Material Description		
						Surface Conditions: Concrete debris		
0						Brown, sandy silt with concrete debris		
1								
2	12:10 PM		G8A-2F					
3	12:20 PM		G8A-3N			Brown, silty sand with cobble		
4						Termination of test pit		
5								
6								
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: E9A	
					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Date: 1/24/2018					Project Number: 0676-01-02			
Logged by: Kaden Reed					Client: Glacier Recycle			
Checked By:					Test Pit Location: See Appendix A, Figure 3			
Contractor: ECI					Excavation Method: Back hoe			
Weather: Overcast with rain					Test Pit Size:		Length 3 feet	Width 3 feet
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level: None encountered			
					Material Description			
					Surface Conditions: Concrete debris			
0					Brown, sandy silt with concrete debris			
1	12:25 PM		E9A-1F					
2	12:30 PM		E9A-2N					
3					Brown, silty sand with cobble			
4					Termination of test pit			
5								
6								
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project:	FSI	Test Pit ID:	D9A
					Project Location:	32300 148th Avenue Southeast, Auburn, Washington		
Date:		1/24/2018			Project Number:	0676-01-02		
Logged by:		Kaden Reed			Client:	Glacier Recycle		
Checked By:					Test Pit Location:	See Appendix A, Figure 3		
Contractor:		ECI			Excavation Method:	Back hoe		
Weather:		Overcast with rain			Test Pit Size:	Length	Width	
						3 feet	3 feet	
Depth (feet)	Time	Sample Type	Sample Number	Graphic Log	Water Level:	None encountered		
					Material Description			
					Surface Conditions:	Concrete debris		
0					Brown, sandy silt with concrete debris			
1								
2	12:45 PM		D9A-2F					
3	12:55 PM		D9A-3N		Brown, sandy silt with rootlets and cobbles			
4					Brown, silty sand with cobble			
5					Termination of test pit			
6								
7								
8								
9								
10								
Notes:								

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: Focused Subsurface Investigation		Boring ID: C7																																			
					Location: 32300 148th Avenue Southeast, Auburn, Washington																																					
					Client: Glacier Recycle		Project Number: 0676-01-02																																			
Date Start/Finish: 1/26/2018		Drilling Method: Direct Push		<table border="1"> <tr> <th colspan="2">Unified Soil Classification System</th> </tr> <tr> <td rowspan="5">NON-COHESIVE SOILS</td> <td>GW</td> <td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td> </tr> <tr> <td>GP</td> <td>POORLY-GRADED GRAVEL</td> </tr> <tr> <td>GM</td> <td>SILTY GRAVEL</td> </tr> <tr> <td>GC</td> <td>CLAYEY GRAVEL</td> </tr> <tr> <td>SW</td> <td>WELL-GRADED SAND, FINE TO COARSE SAND</td> </tr> <tr> <td rowspan="7">COHESIVE SOILS</td> <td>SP</td> <td>POORLY-GRADED SAND</td> </tr> <tr> <td>SM</td> <td>SILTY SAND</td> </tr> <tr> <td>SC</td> <td>CLAYEY SAND</td> </tr> <tr> <td>ML</td> <td>SILT</td> </tr> <tr> <td>CL</td> <td>CLAY</td> </tr> <tr> <td>OL</td> <td>ORGANIC SILT, ORGANIC CLAY</td> </tr> <tr> <td>MH</td> <td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td> </tr> <tr> <td>CH</td> <td>CLAY OF HIGH PLASTICITY, FAT CLAY</td> </tr> <tr> <td>OH</td> <td>ORGANIC CLAY, ORGANIC SILT</td> </tr> <tr> <td>PT</td> <td>PEAT</td> </tr> </table>					Unified Soil Classification System		NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL	GP	POORLY-GRADED GRAVEL	GM	SILTY GRAVEL	GC	CLAYEY GRAVEL	SW	WELL-GRADED SAND, FINE TO COARSE SAND	COHESIVE SOILS	SP	POORLY-GRADED SAND	SM	SILTY SAND	SC	CLAYEY SAND	ML	SILT	CL	CLAY	OL	ORGANIC SILT, ORGANIC CLAY	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT	CH	CLAY OF HIGH PLASTICITY, FAT CLAY	OH	ORGANIC CLAY, ORGANIC SILT	PT	PEAT
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Boring Location: See Appendix A, Figure 3		Ground Elevation: --																																								
Coordinates: --		Water Depth: --																																								
Weather: Overcast		Boring Depth: 16 feet																																								
Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description		Unified Classification	Graphical Representation																																		
1				No odor	Dark brown, dense, medium grained, silty sand with gravel		SM																																			
2																																										
3																																										
4																																										
5																																										
6																																										
7																																										
8																																										
9																																										
10																																										
11					Dark brown, moist, dense, medium grained, silty sand with gravel		SM																																			
12	C7-12	8:35 AM		No odor																																						
13																																										
14																																										
15																																										
16	C7-16	8:40 AM			Termination of boring																																					
17																																										
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 eci Environmental Services Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: Focused Subsurface Investigation		Boring ID: C6																																			
					Location: 32300 148th Avenue Southeast, Auburn, Washington																																					
					Client: Glacier Recycle		Project Number: 0676-01-02																																			
Date Start/Finish: 1/26/2018		Drilling Method: Direct Push		<table border="1"> <thead> <tr> <th colspan="2">Unified Soil Classification System</th> </tr> </thead> <tbody> <tr> <td rowspan="5">NON-COHESIVE SOILS</td> <td>GW</td> <td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td> </tr> <tr> <td>GP</td> <td>POORLY-GRADED GRAVEL</td> </tr> <tr> <td>GM</td> <td>SILTY GRAVEL</td> </tr> <tr> <td>GC</td> <td>CLAYEY GRAVEL</td> </tr> <tr> <td>SW</td> <td>WELL-GRADED SAND, FINE TO COARSE SAND</td> </tr> <tr> <td rowspan="7">COHESIVE SOILS</td> <td>SP</td> <td>POORLY-GRADED SAND</td> </tr> <tr> <td>SM</td> <td>SILTY SAND</td> </tr> <tr> <td>SC</td> <td>CLAYEY SAND</td> </tr> <tr> <td>ML</td> <td>SILT</td> </tr> <tr> <td>CL</td> <td>CLAY</td> </tr> <tr> <td>OL</td> <td>ORGANIC SILT, ORGANIC CLAY</td> </tr> <tr> <td>MH</td> <td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td> </tr> <tr> <td>CH</td> <td>CLAY OF HIGH PLASTICITY, FAT CLAY</td> </tr> <tr> <td>OH</td> <td>ORGANIC CLAY, ORGANIC SILT</td> </tr> <tr> <td>PT</td> <td>PEAT</td> </tr> </tbody> </table>					Unified Soil Classification System		NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL	GP	POORLY-GRADED GRAVEL	GM	SILTY GRAVEL	GC	CLAYEY GRAVEL	SW	WELL-GRADED SAND, FINE TO COARSE SAND	COHESIVE SOILS	SP	POORLY-GRADED SAND	SM	SILTY SAND	SC	CLAYEY SAND	ML	SILT	CL	CLAY	OL	ORGANIC SILT, ORGANIC CLAY	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT	CH	CLAY OF HIGH PLASTICITY, FAT CLAY	OH	ORGANIC CLAY, ORGANIC SILT	PT	PEAT
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	SW	WELL-GRADED SAND, FINE TO COARSE SAND																																								
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Logged By: Kaden Reed		Auger ID/OD: --																																								
Checked By: David Polivka		Borehole ID/OD: 2 inches																																								
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Operator: Russel		Hammer Wt./Fall: --																																								
Boring Location: See Appendix A, Figure 3		Ground Elevation: --																																								
Coordinates: --		Water Depth: --																																								
Weather: Overcast		Boring Depth: 12 feet																																								
Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation																																			
1				No odor	Dark brown, dense, medium grained, silty sand with gravel	SM																																				
2																																										
3																																										
4				No odor																																						
5				No odor																																						
6																																										
7																																										
8	C6-8	9:10 AM			Light brown, dense, medium grained, silty sand with gravel, Brown, dense, medium grained, silty sand with gravel and Mottled light brown streaks	SM SM																																				
9																																										
10				No odor																																						
11					Brown, dense, medium grained, silty sand with large cobbles and Mottled gray streaks	SM																																				
12	C6-12	9:15 AM																																								
13					Termination of boring																																					
14																																										
15																																										
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					Location: 32300 148th Avenue Southeast, Auburn, Washington																																				
					Client: Glacier Recycle		Project Number: 0676-01-02																																		
Date Start/Finish: 1/26/2018		Drilling Method: Direct Push		<table border="1"> <tr> <th colspan="2">Unified Soil Classification System</th> </tr> <tr> <td rowspan="8">NON-COHESIVE SOILS</td> <td>GW</td> <td>WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL</td> </tr> <tr> <td>GP</td> <td>POORLY-GRADED GRAVEL</td> </tr> <tr> <td>GM</td> <td>SILTY GRAVEL</td> </tr> <tr> <td>GC</td> <td>CLAYEY GRAVEL</td> </tr> <tr> <td>SW</td> <td>WELL-GRADED SAND, FINE TO COARSE SAND</td> </tr> <tr> <td>SP</td> <td>POORLY-GRADED SAND</td> </tr> <tr> <td>SM</td> <td>SILTY SAND</td> </tr> <tr> <td>SC</td> <td>CLAYEY SAND</td> </tr> <tr> <td rowspan="7">COHESIVE SOILS</td> <td>ML</td> <td>SILT</td> </tr> <tr> <td>CL</td> <td>CLAY</td> </tr> <tr> <td>OL</td> <td>ORGANIC SILT, ORGANIC CLAY</td> </tr> <tr> <td>MH</td> <td>SILT OF HIGH PLASTICITY, ELASTIC SILT</td> </tr> <tr> <td>CH</td> <td>CLAY OF HIGH PLASTICITY, FAT CLAY</td> </tr> <tr> <td>OH</td> <td>ORGANIC CLAY, ORGANIC SILT</td> </tr> <tr> <td>PT</td> <td>PEAT</td> </tr> </table>				Unified Soil Classification System		NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL	GP	POORLY-GRADED GRAVEL	GM	SILTY GRAVEL	GC	CLAYEY GRAVEL	SW	WELL-GRADED SAND, FINE TO COARSE SAND	SP	POORLY-GRADED SAND	SM	SILTY SAND	SC	CLAYEY SAND	COHESIVE SOILS	ML	SILT	CL	CLAY	OL	ORGANIC SILT, ORGANIC CLAY	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT	CH	CLAY OF HIGH PLASTICITY, FAT CLAY	OH	ORGANIC CLAY, ORGANIC SILT	PT	PEAT
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	OH	ORGANIC CLAY, ORGANIC SILT																																							
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Logged By: Kaden Reed		Auger ID/OD: --																																							
Checked By: David Polivka		Borehole ID/OD: 2 inches																																							
Contractor: Standard Environmental Probe		Sampler: Macro Core 5																																							
Operator: Russel		Hammer Wt./Fall: --																																							
Boring Location: See Appendix A, Figure 3		Ground Elevation: --																																							
Coordinates: --		Water Depth: --																																							
Weather: Overcast		Boring Depth: 8 feet																																							
Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation																																		
1				No odor	Grayish, concrete debris with silty gravel Dark brown, coarse, dense, silty sand with gravel Dark brown, coarse, dense, silty sand with gravel, large cobbles and mottled grayish brown streaks	GM																																			
2	B7-2	9:35 AM		No odor																																					
3																																									
4																																									
5				No odor																																					
6																																									
7																																									
8	B7-8	9:40 AM																																							
9					Termination of boring																																				
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11																																									
12																																									
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					Location: 32300 148th Avenue Southeast, Auburn, Washington			
					Client: Glacier Recycle		Project Number: 0676-01-02	
Date Start/Finish: 1/26/2018		Drilling Method: Direct Push		Unified Soil Classification System NON-COHESIVE SOILS GW WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL GP POORLY-GRADED GRAVEL GM SILTY GRAVEL GC CLAYEY GRAVEL SW WELL-GRADED SAND, FINE TO COARSE SAND SP POORLY-GRADED SAND SM SILTY SAND SC CLAYEY SAND COHESIVE SOILS ML SILT CL CLAY OL ORGANIC SILT, ORGANIC CLAY MH SILT OF HIGH PLASTICITY, ELASTIC SILT CH CLAY OF HIGH PLASTICITY, FAT CLAY OH ORGANIC CLAY, ORGANIC SILT PT PEAT				
Logged By: Kaden Reed		Auger ID/OD: --						
Checked By: David Polivka		Borehole ID/OD: 2 inches						
Contractor: Standard Environmental Probe		Sampler: Macro Core 5						
Operator: Russel		Hammer Wt./Fall: --						
Boring Location: See Appendix A, Figure 3		Ground Elevation: --						
Coordinates: --		Water Depth: --						
Weather: Overcast		Boring Depth: 8 feet						
Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description		Unified Classification	Graphical Representation
1				No odor	Grayish brown, dense, sandy silt with concrete debris, gravel and cobble		ML	
2								
3	B5-3F	10:00 AM						
4				No odor	Grayish brown, dense, sandy silt with concrete debris, gravel cobble and light brown streaks Dark brown, dense, medium grained, silty sand with gravel		ML	
5								
6				No odor				
7	B5-7N	10:05 AM					SM	
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 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: Focused Subsurface Investigation		Boring ID: C5																																				
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					Client: Glacier Recycle		Project Number: 0676-01-02																																				
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Coordinates: --		Water Depth: Approximately 10 feet																																									
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Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation																																				
1				No odor	 Dark brown, dense, medium grained, silty sand with gravel and wood debris Grayish brown, dense, medium grained, silty sand with gravel, cobble and concrete debris Grayish mottled brown, dense, medium grained, silty sand with gravel, cobble and concrete debris Dark brown, dense, medium grained, silty sand with gravel	SM																																					
2																																											
3	C5-3F	10:50 AM		Faint odor																																							
4																																											
5	C5-GW	11:25 AM		No odor																																							
6																																											
7																																											
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10			ATD																																								
11	C5-11N	10:55 AM		No odor																																							
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Notes: Groundwater was encountered at approximately 10 feet below ground surface (bgs) and rose to approximately 4 feet bgs upon collecting a groundwater sample. The soil that was collected within the macro core sampler appeared to be dry.

 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: Focused Subsurface Investigation		Boring ID: D4																																			
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2	F4S-2F	1:45 PM		No odor				
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4				No odor				
5	F4S-5N	1:50 PM				SM		
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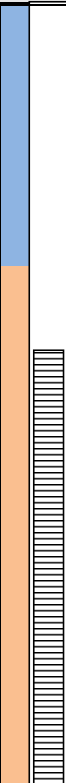
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2	E7N-2F	2:35 PM		No odor																																						
3																																										
4																																										
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6					Dark brown with gray and light brown streaks, coarse, dense, sandy silt with cobble and gravel	ML																																				
7				No odor																																						
8	E7N-8N	2:40 PM			Brown, coarse, dense, medium grained, silty sand with gravel	SM																																				
9					Termination of boring																																					
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2	D8N-2F	3:15 PM		No odor																																					
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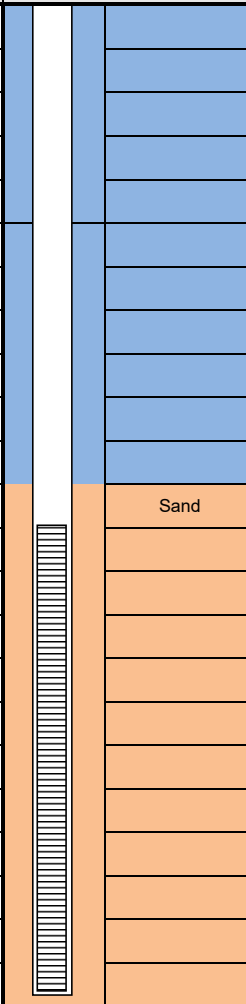
 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland					Project: Groundwater Monitoring Installation Location: 32300 148th Avenue Southeast, Auburn, Washington Client: Glacier Recycle	Boring ID: Project Number:	MW1 0609-01-02								
Date Start/Finish:	2/1/2018		Drilling Method:	HAS		Unified Soil Classification System NON-COHESIVE SOILS GW WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL GP POORLY-GRADED GRAVEL GM SILTY GRAVEL GC CLAYEY GRAVEL SW WELL-GRADED SAND, FINE TO COARSE SAND SP POORLY-GRADED SAND SM SILTY SAND SC CLAYEY SAND COHESIVE SOILS ML SILT CL CLAY OL ORGANIC SILT, ORGANIC CLAY MH SILT OF HIGH PLASTICITY, ELASTIC SILT CH CLAY OF HIGH PLASTICITY, FAT CLAY OH ORGANIC CLAY, ORGANIC SILT PT PEAT									
Logged By:	David Polivka		Auger ID/OD:	4.5 inches/7 inches											
Checked By:			Borehole ID/OD:	4 inches											
Contractor:	Holocene		Sampler:	Split spoon											
Operator:	Rodney Gilseth		Hammer Wt./Fall:												
Boring Location:	See Appendix A, Figure 3		Ground Elevation:												
Coordinates:	--		Water Depth:	46.5 feet											
Weather:	Overcast with rain		Boring Depth:	50 feet											
Soil and Rock Description															
Unified Classification															
Well Construction Detail															
Depth (ft bgs)	Sample No.	Time	PID Reading	Remarks: Odor, Sheen, Etc	Soil and Rock Description	Unified Classification	Well Construction Detail								
1					Surface grass Scotch broom	Fill	Cement (6" above ground Monument)								
2							Fill								
3								Fill							
4									Fill						
5										Fill					
6		8:44		blow count 7/50 for 5"	Brown dense gravelly SAND (some brick fragments) (dry)						Fill				
7				2" recovery								Fill			
8													Fill		
9														Fill	
10															Fill
11				Blow count 28/28/21	Brown medium dense medium sandy coarse GRAVEL	GW									
12				(no sample recovery)	(Gravel to 3" Dia.) (dry)		GW								
13								GW							
14									GW						
15		9:00		Blow count						GW					
16				46/47/50 for 5"							GW				
17												GW			
18													GW		
19														GW	
20		9:05		Blow count 50 for 5"											GW
21				(no sample recovery)		GW									
22							GW								
23								GW							
24									GW						
25		9:08		Blow count						GW					
26				46/47/50 for 5"							GW				
27					Brown dense fine silty SAND (moist)							SM			
28					Water at 28 feet for 12 inches								SM		
29														SM	
30				Blow count	(Some gravel)										SM
31				50 for 5"		SM									
32							SM								

 eci Environmental Services Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland				Project: Groundwater Monitoring Installation Location: 32300 148th Avenue Southeast, Auburn, Washington Client: Glacier Recycle	Boring ID: MW1 Project Number: 0609-01-02
Date Start/Finish:	2/1/2018		Drilling Method:	HAS	
Logged By:	David Polivka		Auger ID/OD:	4.5 inches/7 inches	
Checked By:			Borehole ID/OD:	4 inches	
Contractor:	Holocene		Sampler:	Split spoon	
Operator:	Rodney Gilseth		Hammer Wt./Fall:		
Boring Location:	See Appendix A, Figure 3		Ground Elevation:		
Coordinates:	--		Water Depth:	46.5 feet	
Weather:	Overcast with rain		Boring Depth:	50 feet	

Depth (ft bgs)	Sample No.	Time	PID Reading	Remarks: Odor, Sheen, Etc	Soil and Rock Description	Unified Classification	Well Construction Detail
33						SM	Bentonite Slurry
34							
35							
36				Blow count	Gray very dense fine sandy SILT (moist to dry)	SM	Bentonite chips
37				50 for 5"			
38				hard drilling			
39						SM	
40		9:33		Blow count	Gray brown very dense silty SAND to sandy SILT		
41				50 for 4"	(some fine to medium gravel) (moist)		
42							
43							
44			ATD				
45							
46		9:38		Blow count	Gray clayey very stiff SILT	ML	
47				16/32/26	(some find SAND at 46 1/2 feet) (moist to wet)		
48						ML	
49			ATD	Blow count	Gray very stiff clayey SILT to Silty CLAY (wet)		
50				20/50 for 6"	driller says there is 6' of water		

Notes: Borehole was advanced in 5 foot increments with a soil core collected with each 5 foot increment. Most of the soil cores returned with limited or no soil recovery. ECI characterized the tailings from the auger cutting when possible to limit this data gap.  Water level at time of drilling  Water encountered at time of drilling

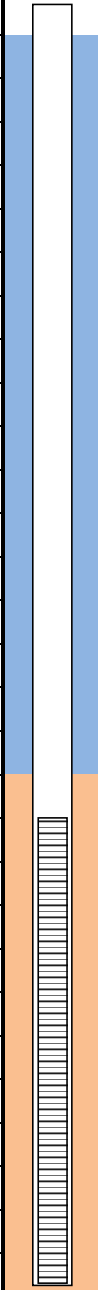
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 Practical Environmental Compliance Solutions Offices in: Anchorage Tacoma Portland		Project: Groundwater Monitoring Installation		Boring ID: MW2				
		Location: 32300 148th Avenue Southeast, Auburn, Washington		Project Number: 0609-01-02				
		Client: Glacier Recycle						
Date Start/Finish: 2/1/2018		Drilling Method:		Unified Soil Classification System NON-COHESIVE SOILS GW WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL GP POORLY-GRADED GRAVEL GM SILTY GRAVEL GC CLAYEY GRAVEL SW WELL-GRADED SAND, FINE TO COARSE SAND SP POORLY-GRADED SAND SM SILTY SAND SC CLAYEY SAND COHESIVE SOILS ML SILT CL CLAY OL ORGANIC SILT, ORGANIC CLAY MH SILT OF HIGH PLASTICITY, ELASTIC SILT CH CLAY OF HIGH PLASTICITY, FAT CLAY OH ORGANIC CLAY, ORGANIC SILT PT PEAT				
Logged By: Kaden Reed		Auger ID/OD: 4.5 inches/7 inches						
Checked By: David Polivka		Borehole ID/OD: 4 inches						
Contractor: Holocene		Sampler: Split spoon						
Operator: Rodney Gilseth		Hammer Wt./Fall:						
Boring Location: See Appendix A, Figure 3		Ground Elevation:						
Coordinates: --		Water Depth: 44 feet						
Weather: Overcast with rain		Boring Depth: 50 feet						
Depth (ft bgs)	Sample No.	Time	PID Reading			Remarks: Odor, Sheen, Etc	Soil and Rock Description	Unified Classification
28								
29								
30								
31				No odor	Light brown, dense, coarse, clayey silty sand with	SM		
32					cobble			
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46				No odor	Light brown, wet, dense, coarse, clayey silty sand	SM		
47					with cobble			
48								
49				No odor	Brown, wet, dense, coarse, clayey silty sand with	SM		
50					cobble			
Notes: Borehole was advanced in 5 foot increments with a soil core collected with each 5 foot increment. Most of the soil cores returned with limited or no soil recovery. ECI characterized the tailings from the boring auger when possible to limit this data gap.								

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland		Project:	Groundwater Monitoring Installation		Boring ID:	MW3	
		Location:	32300 148th Avenue Southeast, Auburn, Washington				
		Client:	Glacier Recycle		Project Number:	0609-01-02	

Date Start/Finish:	2/2/2018	Drilling Method:	
Logged By:	Kaden Reed	Auger ID/OD:	4.5 inches/7 inches
Checked By:	David Polivka	Borehole ID/OD:	4 inches
Contractor:	Holocene	Sampler:	Split spoon
Operator:	Rodney Gilseth	Hammer Wt./Fall:	
Boring Location:	See Appendix A, Figure 3	Ground Elevation:	
Coordinates:	--	Water Depth:	24 feet
Weather:	Overcast with rain	Boring Depth:	30 feet

Unified Soil Classification System	
NON-COHESIVE SOILS	GW WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP POORLY-GRADED GRAVEL
	GM SILTY GRAVEL
	GC CLAYEY GRAVEL
	SW WELL-GRADED SAND, FINE TO COARSE SAND
	SP POORLY-GRADED SAND
	SM SILTY SAND
	SC CLAYEY SAND
COHESIVE SOILS	ML SILT
	CL CLAY
	OL ORGANIC SILT, ORGANIC CLAY
	MH SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH CLAY OF HIGH PLASTICITY, FAT CLAY
	OH ORGANIC CLAY, ORGANIC SILT
	PT PEAT

Depth (ft bgs)	Sample No.	Time	PID Reading	Remarks: Odor, Sheen, Etc	Soil and Rock Description	Unified Classification	Well Construction Detail
1				No odor	Grayish brown, dense, coarse, medium grained,	ML	
2					clayey sandy silt with gravel		
3							
4							
5				No odor	Grayish brown, dense, coarse, medium grained,	ML	
6					clayey sandy silt with gravel and light brown streaks		
7							
8							
9							
10							
11				No odor	Brown, loose, medium grained, silty sand with	SM	
12					cobble		
13							
14							
15							
16				No odor	Light brown, loose, medium grained, silty sand with	SM	
17					cobble		
18							
19							
20							
21				No odor	Light brown, wet, loose, medium grained, silty sand	SM	
22					with cobble		
23							
24							
25							
26							
27							
28							
29							
30							

Notes: Borehole was advanced in 5 foot increments with a soil core collected with each 5 foot increment. Most of the soil cores returned with limited or no soil recovery. ECI characterized the tailings from the boring auger when possible to limit this data gap.

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland					Project:		FSI		Test Pit ID:		H5B	
					Project Location:		32300 148th Avenue Southeast, Auburn, Washington					
Date:					4/25/2018		Project Number:		0676-01-02			
Logged by:					Kaden Reed		Client:		Glacier Recycle			
Checked By:					David Polivka		Test Pit Location:		See Appendix A, Figure 3			
Contractor:					ECI		Excavation Method:		Back hoe			
Weather:					Sunny		Test Pit Size:		Length		Width	
							3 feet		3 feet		3 feet	
Depth (feet)					Time		Sample Type		Sample Number		Graphic Log	
0												
1												
2												
3					9:40 AM		Soil		H5B-3			
4												
5												
6												
7												
8												
9												
10												
Notes:												

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland					Project:		FSI		Test Pit ID:		H5B2	
					Project Location:		32300 148th Avenue Southeast, Auburn, Washington					
Date:					4/25/2018		Project Number:		0676-01-02			
Logged by:					Kaden Reed		Client:		Glacier Recycle			
Checked By:					David Polivka		Test Pit Location:		See Appendix A, Figure 3			
Contractor:					ECI		Excavation Method:		Back hoe			
Weather:					Sunny		Test Pit Size:		Length		Width	
							3 feet		3 feet			
Depth (feet)					Time		Sample Type		Sample Number		Graphic Log	
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
Notes:												

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland					Project:		FSI		Test Pit ID:		F6				
					Project Location:		32300 148th Avenue Southeast, Auburn, Washington								
Date: 4/25/2018					Project Number:		0676-01-02								
Logged by: Kaden Reed					Client:		Glacier Recycle								
Checked By: David Polivka					Test Pit Location:		See Appendix A, Figure 3								
Contractor: ECI					Excavation Method:		Back hoe								
Weather: Sunny					Test Pit Size:		Length		Width						
					3 feet		3 feet								
					Water Level:		None encountered								
					Material Description										
					Surface Conditions:		Grass, brick debris and concrete debris								
Depth (feet)					Time					Sample Type		Sample Number		Graphic Log	
0															
1					10:10 AM					Soil		F6-1F			
2															
3					10:15 AM					Soil		F6-3N			
4															
5															
6															
7															
8															
9															
10															
Notes:															

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland					Project:		FSI		Test Pit ID:		H7A	
					Project Location:		32300 148th Avenue Southeast, Auburn, Washington					
Date:					4/25/2018		Project Number:		0676-01-02			
Logged by:					Kaden Reed		Client:		Glacier Recycle			
Checked By:					David Polivka		Test Pit Location:		See Appendix A, Figure 3			
Contractor:					ECI		Excavation Method:		Back hoe			
Weather:					Sunny		Test Pit Size:		Length		Width	
							3 feet		3 feet		3 feet	
Depth (feet)					Time		Sample Type		Sample Number		Graphic Log	
0												
1												
2												
3					10:50 AM		Soil		H7A-3F			
4												
5												
6					10:55 AM		Soil		H7A-6N			
7												
8												
9												
10												
Notes:												

 Practical Environmental Compliance Solutions Offices In: Anchorage Tacoma Portland					Project: FSI		Test Pit ID: E8A	
Date: 4/25/2018					Project Location: 32300 148th Avenue Southeast, Auburn, Washington			
Logged by: Kaden Reed					Project Number: 0676-01-02			
Checked By: David Polivka					Client: Glacier Recycle			
Contractor: ECI					Test Pit Location: See Appendix A, Figure 3			
Weather: Sunny					Excavation Method: Back hoe			
					Test Pit Size:		Length 3 feet	Width 3 feet
					Water Level:		None encountered	
					Material Description			
					Surface Conditions: Grass, brick debris and concrete debris			
0					Brown, loose, coarse, sandy silt with brick and concrete debris			
1								
2	11:35 AM	Soil	E8A-2		Blackish brown, loose, coarse, sandy silt with brick and concrete debris			
3					Reddish brown, loose, coarse, sandy silt with brick and concrete debris			
4								
5					Termination of test pit			
6								
7								
8								
9								
10								
Notes:								

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

February 5, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on January 25, 2018 from the 0676-01-02, F&BI 801343 project. There are 70 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Steve Spencer
EMS0205R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 25, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-02, F&BI 801343 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
801343 -01	G2A-3F
801343 -02	G2A-4N
801343 -03	H3A-2F
801343 -04	H3A-4N
801343 -05	H5A-2F
801343 -06	H5A-5N
801343 -07	H4A-2F
801343 -08	H4A-3N
801343 -09	G6A-2F
801343 -10	G6A-7N
801343 -11	G8A-2F
801343 -12	G8A-3N
801343 -13	E9A-1F
801343 -14	E9A-2N
801343 -15	D9A-2F
801343 -16	D9A-3N

An 8270D internal standard failed the acceptance criteria for samples H3A-2F, H5A-2F, and H4A-2F due to matrix interferences. The data were flagged accordingly. The samples were diluted and reanalyzed.

An 8270D SIM internal standard failed the acceptance criteria for samples G2A-3F, H3A-2F, H4A-2F, G6A-2F, D9A-2F, and D9A-3N due to matrix interferences. The data were flagged accordingly. The samples were diluted and reanalyzed.

Hexachlorocyclopentadiene in the 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

Date Extracted: 01/29/18

Date Analyzed: 01/29/18

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

**Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis**

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)
G2A-3F 801343-01	99 x	920	105
G2A-4N 801343-02	<50	<250	107
H3A-2F 801343-03	<50	970	108
H3A-4N 801343-04	<50	<250	104
H5A-2F 801343-05	4,800 x	15,000	127
H5A-5N 801343-06	<50	<250	109
H4A-2F 801343-07	60 x	1,600	105
H4A-3N 801343-08	<50	<250	105
G6A-2F 801343-09	<50	960	122
G6A-7N 801343-10	<50	<250	107
G8A-2F 801343-11	<50	630	107
G8A-3N	<50	<250	125

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

801343-12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

Date Extracted: 01/29/18

Date Analyzed: 01/29/18

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

**Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis**

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)	Surrogate (% Recovery) (Limit 56-165)
E9A-1F 801343-13	<50	<250	112
E9A-2N 801343-14	<50	<250	107
D9A-2F 801343-15 1/10	1,200 x	24,000	149
D9A-3N 801343-16	<50	670	111
Method Blank 08-248 MB	<50	<250	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

Date Extracted: 01/30/18, and 02/01/18

Date Analyzed: 01/30/18, and 02/01/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR pH
USING EPA METHOD 9045D**

<u>Sample ID</u> Laboratory ID	<u>pH</u>
G2A-3F 801343-01	7.2
G2A-4N 801343-02	7.7
H3A-2F 801343-03	8.3
H3A-4N 801343-04	8.2
H5A-2F 801343-05	7.8
H5A-5N 801343-06	8.1
H4A-2F 801343-07	10
H4A-3N 801343-08	8.2
G6A-2F 801343-09	8.3
G6A-7N 801343-10	8.2
G8A-2F 801343-11	7.8
G8A-3N 801343-12	7.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

Date Extracted: 01/30/18, and 02/01/18

Date Analyzed: 01/30/18, and 02/01/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR pH
USING EPA METHOD 9045D**

<u>Sample ID</u>	<u>pH</u>
Laboratory ID	
E9A-1F	7.6
801343-13	
E9A-2N	7.8
801343-14	
D9A-2F	7.5
801343-15	
D9A-3N	7.6
801343-16	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G2A-3F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-01
Date Analyzed:	01/26/18	Data File:	801343-01.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	5.28
Cadmium	<1
Chromium	22.2
Lead	14.4
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G2A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-02
Date Analyzed:	01/26/18	Data File:	801343-02.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.15
Cadmium	<1
Chromium	11.9
Lead	2.12
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H3A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-03
Date Analyzed:	01/26/18	Data File:	801343-03.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	8.25
Cadmium	<1
Chromium	19.8
Lead	29.3
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H3A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-04
Date Analyzed:	01/26/18	Data File:	801343-04.106
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.35
Cadmium	<1
Chromium	12.1
Lead	2.08
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H5A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-05
Date Analyzed:	01/26/18	Data File:	801343-05.107
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	10.1
Cadmium	1.25
Chromium	22.4
Lead	112
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H5A-5N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-06
Date Analyzed:	01/26/18	Data File:	801343-06.108
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.94
Cadmium	<1
Chromium	12.6
Lead	2.76
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H4A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-07
Date Analyzed:	01/26/18	Data File:	801343-07.109
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	6.74
Cadmium	<1
Chromium	21.3
Lead	21.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H4A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-08
Date Analyzed:	01/26/18	Data File:	801343-08.110
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.27
Cadmium	<1
Chromium	10.6
Lead	3.94
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G6A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-09
Date Analyzed:	01/26/18	Data File:	801343-09.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	11.0
Cadmium	<1
Chromium	19.1
Lead	26.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G6A-7N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-10
Date Analyzed:	01/26/18	Data File:	801343-10.116
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.75
Cadmium	<1
Chromium	12.5
Lead	2.45
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G8A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-11
Date Analyzed:	01/26/18	Data File:	801343-11.117
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.62
Cadmium	<1
Chromium	11.1
Lead	4.45
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	G8A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-12
Date Analyzed:	01/26/18	Data File:	801343-12.118
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.39
Cadmium	<1
Chromium	12.2
Lead	1.99
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E9A-1F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-13
Date Analyzed:	01/26/18	Data File:	801343-13.119
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	5.31
Cadmium	<1
Chromium	15.8
Lead	17.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E9A-2N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-14
Date Analyzed:	01/26/18	Data File:	801343-14.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.65
Cadmium	<1
Chromium	12.8
Lead	4.00
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D9A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-15
Date Analyzed:	01/26/18	Data File:	801343-15.121
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	13.2
Cadmium	<1
Chromium	22.5
Lead	25.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D9A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	801343-16
Date Analyzed:	01/26/18	Data File:	801343-16.122
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	6.54
Cadmium	<1
Chromium	9.60
Lead	15.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/26/18	Lab ID:	I8-065 mb
Date Analyzed:	01/26/18	Data File:	I8-065 mb.091
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G2A-3F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-01 1/500
Date Analyzed:	01/31/18	Data File:	013033.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	100 d	56	115
Phenol-d6	93 d	54	113
Nitrobenzene-d5	90 d	31	164
2-Fluorobiphenyl	100 d	47	133
2,4,6-Tribromophenol	40 d	35	141
Terphenyl-d14	100 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	<5
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	<5	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	<5	Di-n-octyl phthalate	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G2A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-02 1/5
Date Analyzed:	01/30/18	Data File:	013026.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	129 vo	56	115
Phenol-d6	121 vo	54	113
Nitrobenzene-d5	125	31	164
2-Fluorobiphenyl	122	47	133
2,4,6-Tribromophenol	105	35	141
Terphenyl-d14	134	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID: H3A-2F	Client: EcoCon
Date Received: 01/25/18	Project: 0676-01-02, F&BI 801343
Date Extracted: 01/30/18	Lab ID: 801343-03 1/500
Date Analyzed: 01/31/18	Data File: 013039.D
Matrix: Soil	Instrument: GCMS8
Units: mg/kg (ppm) Dry Weight	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	93 d	56	115
Phenol-d6	100 d	54	113
Nitrobenzene-d5	100 d	31	164
2-Fluorobiphenyl	110 d	47	133
2,4,6-Tribromophenol	47 d	35	141
Terphenyl-d14	110 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	<5
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	<5	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	<5	Di-n-octyl phthalate	<50 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	H3A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-04
Date Analyzed:	01/30/18	Data File:	013025.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	92	56	115
Phenol-d6	88	54	113
Nitrobenzene-d5	89	31	164
2-Fluorobiphenyl	87	47	133
2,4,6-Tribromophenol	88	35	141
Terphenyl-d14	108	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	Hexachlorocyclopentadiene	<0.03
Bis(2-chloroethyl) ether	<0.01	2,4,6-Trichlorophenol	<0.1
2-Chlorophenol	<0.1	2,4,5-Trichlorophenol	<0.1
1,3-Dichlorobenzene	<0.01	2-Chloronaphthalene	<0.01
1,4-Dichlorobenzene	<0.01	2-Nitroaniline	<0.05
1,2-Dichlorobenzene	<0.01	Dimethyl phthalate	<0.1
Benzyl alcohol	<0.1	2,6-Dinitrotoluene	<0.05
2,2'-Oxybis(1-chloropropane)	<0.01	3-Nitroaniline	<1
2-Methylphenol	<0.1	2,4-Dinitrophenol	<0.3
Hexachloroethane	<0.01	Dibenzofuran	<0.01
N-Nitroso-di-n-propylamine	<0.01	2,4-Dinitrotoluene	<0.05
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitrophenol	<0.3
Nitrobenzene	<0.01	Diethyl phthalate	<0.1
Isophorone	<0.01	4-Chlorophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	N-Nitrosodiphenylamine	<0.01
2,4-Dimethylphenol	<0.1	4-Nitroaniline	<1
Benzoic acid	<0.5	4,6-Dinitro-2-methylphenol	<0.3
Bis(2-chloroethoxy)methane	<0.01	4-Bromophenyl phenyl ether	<0.01
2,4-Dichlorophenol	<0.1	Hexachlorobenzene	<0.01
1,2,4-Trichlorobenzene	<0.01	Pentachlorophenol	<0.1
Hexachlorobutadiene	<0.01	Carbazole	<0.1
4-Chloroaniline	<1	Di-n-butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benzyl butyl phthalate	<0.1
2-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.16
1-Methylnaphthalene	<0.01	Di-n-octyl phthalate	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	H5A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-05 1/1000
Date Analyzed:	01/31/18	Data File:	013038.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66 d	56	115
Phenol-d6	66 d	54	113
Nitrobenzene-d5	80 d	31	164
2-Fluorobiphenyl	80 d	47	133
2,4,6-Tribromophenol	40 d	35	141
Terphenyl-d14	100 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<100	Hexachlorocyclopentadiene	<30
Bis(2-chloroethyl) ether	<10	2,4,6-Trichlorophenol	<100
2-Chlorophenol	<100	2,4,5-Trichlorophenol	<100
1,3-Dichlorobenzene	<10	2-Chloronaphthalene	<10
1,4-Dichlorobenzene	<10	2-Nitroaniline	<50
1,2-Dichlorobenzene	<10	Dimethyl phthalate	<100
Benzyl alcohol	<100	2,6-Dinitrotoluene	<50
2,2'-Oxybis(1-chloropropane)	<10	3-Nitroaniline	<1,000
2-Methylphenol	<100	2,4-Dinitrophenol	<300
Hexachloroethane	<10	Dibenzofuran	<10
N-Nitroso-di-n-propylamine	<10	2,4-Dinitrotoluene	<50
3-Methylphenol + 4-Methylphenol	<200	4-Nitrophenol	<300
Nitrobenzene	<10	Diethyl phthalate	<100
Isophorone	<10	4-Chlorophenyl phenyl ether	<10
2-Nitrophenol	<100	N-Nitrosodiphenylamine	<10
2,4-Dimethylphenol	<100	4-Nitroaniline	<1,000
Benzoic acid	<500	4,6-Dinitro-2-methylphenol	<300
Bis(2-chloroethoxy)methane	<10	4-Bromophenyl phenyl ether	<10
2,4-Dichlorophenol	<100	Hexachlorobenzene	<10
1,2,4-Trichlorobenzene	<10	Pentachlorophenol	<100
Hexachlorobutadiene	<10	Carbazole	<100
4-Chloroaniline	<1,000	Di-n-butyl phthalate	<100
4-Chloro-3-methylphenol	<100	Benzyl butyl phthalate	<100
2-Methylnaphthalene	<10	Bis(2-ethylhexyl) phthalate	<160
1-Methylnaphthalene	<10	Di-n-octyl phthalate	<100 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	H5A-5N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-06 1/5
Date Analyzed:	01/30/18	Data File:	013027.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	122 vo	56	115
Phenol-d6	118 vo	54	113
Nitrobenzene-d5	119	31	164
2-Fluorobiphenyl	115	47	133
2,4,6-Tribromophenol	102	35	141
Terphenyl-d14	120	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	H4A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-07 1/500
Date Analyzed:	01/31/18	Data File:	013036.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	87 d	56	115
Phenol-d6	93 d	54	113
Nitrobenzene-d5	90 d	31	164
2-Fluorobiphenyl	110 d	47	133
2,4,6-Tribromophenol	27 d	35	141
Terphenyl-d14	120 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	<5
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	<5	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	<5	Di-n-octyl phthalate	<50 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	H4A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-08 1/5
Date Analyzed:	01/30/18	Data File:	013028.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	119 vo	56	115
Phenol-d6	112	54	113
Nitrobenzene-d5	114	31	164
2-Fluorobiphenyl	111	47	133
2,4,6-Tribromophenol	106	35	141
Terphenyl-d14	130	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G6A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-09 1/500
Date Analyzed:	01/31/18	Data File:	013035.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	100 d	56	115
Phenol-d6	93 d	54	113
Nitrobenzene-d5	100 d	31	164
2-Fluorobiphenyl	110 d	47	133
2,4,6-Tribromophenol	40 d	35	141
Terphenyl-d14	110 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	<5
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	<5	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	<5	Di-n-octyl phthalate	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G6A-7N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-10 1/5
Date Analyzed:	01/30/18	Data File:	013029.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	122 vo	56	115
Phenol-d6	115 vo	54	113
Nitrobenzene-d5	119	31	164
2-Fluorobiphenyl	114	47	133
2,4,6-Tribromophenol	104	35	141
Terphenyl-d14	124	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G8A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-11 1/50
Date Analyzed:	01/30/18	Data File:	013032.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	103 d	56	115
Phenol-d6	106 d	54	113
Nitrobenzene-d5	107 d	31	164
2-Fluorobiphenyl	106 d	47	133
2,4,6-Tribromophenol	73 d	35	141
Terphenyl-d14	114 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<5	Hexachlorocyclopentadiene	<1.5
Bis(2-chloroethyl) ether	<0.5	2,4,6-Trichlorophenol	<5
2-Chlorophenol	<5	2,4,5-Trichlorophenol	<5
1,3-Dichlorobenzene	<0.5	2-Chloronaphthalene	<0.5
1,4-Dichlorobenzene	<0.5	2-Nitroaniline	<2.5
1,2-Dichlorobenzene	<0.5	Dimethyl phthalate	<5
Benzyl alcohol	<5	2,6-Dinitrotoluene	<2.5
2,2'-Oxybis(1-chloropropane)	<0.5	3-Nitroaniline	<50
2-Methylphenol	<5	2,4-Dinitrophenol	<15
Hexachloroethane	<0.5	Dibenzofuran	<0.5
N-Nitroso-di-n-propylamine	<0.5	2,4-Dinitrotoluene	<2.5
3-Methylphenol + 4-Methylphenol	<10	4-Nitrophenol	<15
Nitrobenzene	<0.5	Diethyl phthalate	<5
Isophorone	<0.5	4-Chlorophenyl phenyl ether	<0.5
2-Nitrophenol	<5	N-Nitrosodiphenylamine	<0.5
2,4-Dimethylphenol	<5	4-Nitroaniline	<50
Benzoic acid	<25	4,6-Dinitro-2-methylphenol	<15
Bis(2-chloroethoxy)methane	<0.5	4-Bromophenyl phenyl ether	<0.5
2,4-Dichlorophenol	<5	Hexachlorobenzene	<0.5
1,2,4-Trichlorobenzene	<0.5	Pentachlorophenol	<5
Hexachlorobutadiene	<0.5	Carbazole	<5
4-Chloroaniline	<50	Di-n-butyl phthalate	<5
4-Chloro-3-methylphenol	<5	Benzyl butyl phthalate	<5
2-Methylnaphthalene	<0.5	Bis(2-ethylhexyl) phthalate	<8
1-Methylnaphthalene	<0.5	Di-n-octyl phthalate	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	G8A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-12 1/5
Date Analyzed:	01/30/18	Data File:	013030.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	121 vo	56	115
Phenol-d6	114 vo	54	113
Nitrobenzene-d5	118	31	164
2-Fluorobiphenyl	115	47	133
2,4,6-Tribromophenol	107	35	141
Terphenyl-d14	125	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E9A-1F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-13 1/100
Date Analyzed:	01/31/18	Data File:	013034.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	100 d	56	115
Phenol-d6	105 d	54	113
Nitrobenzene-d5	104 d	31	164
2-Fluorobiphenyl	104 d	47	133
2,4,6-Tribromophenol	71 d	35	141
Terphenyl-d14	114 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<10	Hexachlorocyclopentadiene	<3
Bis(2-chloroethyl) ether	<1	2,4,6-Trichlorophenol	<10
2-Chlorophenol	<10	2,4,5-Trichlorophenol	<10
1,3-Dichlorobenzene	<1	2-Chloronaphthalene	<1
1,4-Dichlorobenzene	<1	2-Nitroaniline	<5
1,2-Dichlorobenzene	<1	Dimethyl phthalate	<10
Benzyl alcohol	<10	2,6-Dinitrotoluene	<5
2,2'-Oxybis(1-chloropropane)	<1	3-Nitroaniline	<100
2-Methylphenol	<10	2,4-Dinitrophenol	<30
Hexachloroethane	<1	Dibenzofuran	<1
N-Nitroso-di-n-propylamine	<1	2,4-Dinitrotoluene	<5
3-Methylphenol + 4-Methylphenol	<20	4-Nitrophenol	<30
Nitrobenzene	<1	Diethyl phthalate	<10
Isophorone	<1	4-Chlorophenyl phenyl ether	<1
2-Nitrophenol	<10	N-Nitrosodiphenylamine	<1
2,4-Dimethylphenol	<10	4-Nitroaniline	<100
Benzoic acid	<50	4,6-Dinitro-2-methylphenol	<30
Bis(2-chloroethoxy)methane	<1	4-Bromophenyl phenyl ether	<1
2,4-Dichlorophenol	<10	Hexachlorobenzene	<1
1,2,4-Trichlorobenzene	<1	Pentachlorophenol	<10
Hexachlorobutadiene	<1	Carbazole	<10
4-Chloroaniline	<100	Di-n-butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benzyl butyl phthalate	<10
2-Methylnaphthalene	<1	Bis(2-ethylhexyl) phthalate	<16
1-Methylnaphthalene	<1	Di-n-octyl phthalate	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E9A-2N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-14 1/5
Date Analyzed:	01/30/18	Data File:	013031.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	125 vo	56	115
Phenol-d6	118 vo	54	113
Nitrobenzene-d5	121	31	164
2-Fluorobiphenyl	116	47	133
2,4,6-Tribromophenol	112	35	141
Terphenyl-d14	133	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D9A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-15 1/1000
Date Analyzed:	01/31/18	Data File:	013040.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66 d	56	115
Phenol-d6	80 d	54	113
Nitrobenzene-d5	100 d	31	164
2-Fluorobiphenyl	100 d	47	133
2,4,6-Tribromophenol	26 d	35	141
Terphenyl-d14	100 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<100	Hexachlorocyclopentadiene	<30
Bis(2-chloroethyl) ether	<10	2,4,6-Trichlorophenol	<100
2-Chlorophenol	<100	2,4,5-Trichlorophenol	<100
1,3-Dichlorobenzene	<10	2-Chloronaphthalene	<10
1,4-Dichlorobenzene	<10	2-Nitroaniline	<50
1,2-Dichlorobenzene	<10	Dimethyl phthalate	<100
Benzyl alcohol	<100	2,6-Dinitrotoluene	<50
2,2'-Oxybis(1-chloropropane)	<10	3-Nitroaniline	<1,000
2-Methylphenol	<100	2,4-Dinitrophenol	<300
Hexachloroethane	<10	Dibenzofuran	<10
N-Nitroso-di-n-propylamine	<10	2,4-Dinitrotoluene	<50
3-Methylphenol + 4-Methylphenol	<200	4-Nitrophenol	<300
Nitrobenzene	<10	Diethyl phthalate	<100
Isophorone	<10	4-Chlorophenyl phenyl ether	<10
2-Nitrophenol	<100	N-Nitrosodiphenylamine	<10
2,4-Dimethylphenol	<100	4-Nitroaniline	<1,000
Benzoic acid	<500	4,6-Dinitro-2-methylphenol	<300
Bis(2-chloroethoxy)methane	<10	4-Bromophenyl phenyl ether	<10
2,4-Dichlorophenol	<100	Hexachlorobenzene	<10
1,2,4-Trichlorobenzene	<10	Pentachlorophenol	<100
Hexachlorobutadiene	<10	Carbazole	<100
4-Chloroaniline	<1,000	Di-n-butyl phthalate	<100
4-Chloro-3-methylphenol	<100	Benzyl butyl phthalate	<100
2-Methylnaphthalene	<10	Bis(2-ethylhexyl) phthalate	<160
1-Methylnaphthalene	<10	Di-n-octyl phthalate	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D9A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	801343-16 1/500
Date Analyzed:	01/31/18	Data File:	013037.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	93 d	56	115
Phenol-d6	93 d	54	113
Nitrobenzene-d5	100 d	31	164
2-Fluorobiphenyl	100 d	47	133
2,4,6-Tribromophenol	27 d	35	141
Terphenyl-d14	100 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	<5
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	<5	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	<5	Di-n-octyl phthalate	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/30/18	Lab ID:	08-246 mb
Date Analyzed:	01/30/18	Data File:	013024.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	96	56	115
Phenol-d6	92	54	113
Nitrobenzene-d5	94	31	164
2-Fluorobiphenyl	92	47	133
2,4,6-Tribromophenol	84	35	141
Terphenyl-d14	108	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	Hexachlorocyclopentadiene	<0.03
Bis(2-chloroethyl) ether	<0.01	2,4,6-Trichlorophenol	<0.1
2-Chlorophenol	<0.1	2,4,5-Trichlorophenol	<0.1
1,3-Dichlorobenzene	<0.01	2-Chloronaphthalene	<0.01
1,4-Dichlorobenzene	<0.01	2-Nitroaniline	<0.05
1,2-Dichlorobenzene	<0.01	Dimethyl phthalate	<0.1
Benzyl alcohol	<0.1	2,6-Dinitrotoluene	<0.05
2,2'-Oxybis(1-chloropropane)	<0.01	3-Nitroaniline	<1
2-Methylphenol	<0.1	2,4-Dinitrophenol	<0.3
Hexachloroethane	<0.01	Dibenzofuran	<0.01
N-Nitroso-di-n-propylamine	<0.01	2,4-Dinitrotoluene	<0.05
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitrophenol	<0.3
Nitrobenzene	<0.01	Diethyl phthalate	<0.1
Isophorone	<0.01	4-Chlorophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	N-Nitrosodiphenylamine	<0.01
2,4-Dimethylphenol	<0.1	4-Nitroaniline	<1
Benzoic acid	<0.5	4,6-Dinitro-2-methylphenol	<0.3
Bis(2-chloroethoxy)methane	<0.01	4-Bromophenyl phenyl ether	<0.01
2,4-Dichlorophenol	<0.1	Hexachlorobenzene	<0.01
1,2,4-Trichlorobenzene	<0.01	Pentachlorophenol	<0.1
Hexachlorobutadiene	<0.01	Carbazole	<0.1
4-Chloroaniline	<1	Di-n-butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benzyl butyl phthalate	<0.1
2-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.16
1-Methylnaphthalene	<0.01	Di-n-octyl phthalate	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G2A-3F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-01 1/50
Date Analyzed:	02/01/18	Data File:	013139.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	129 d	31	163
Benzo(a)anthracene-d12	119 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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 J
Benzo(b)fluoranthene	<0.1 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G2A-3F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-01 1/500
Date Analyzed:	01/30/18	Data File:	013008.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	159 d	31	163
Benzo(a)anthracene-d12	138 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G2A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-02 1/5
Date Analyzed:	01/30/18	Data File:	013007.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	163
Benzo(a)anthracene-d12	107	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H3A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-03 1/50
Date Analyzed:	02/01/18	Data File:	013137.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	137 d	31	163
Benzo(a)anthracene-d12	117 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	0.14
Benz(a)anthracene	<0.1
Chrysene	0.11
Benzo(a)pyrene	<0.1 J
Benzo(b)fluoranthene	0.13 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H3A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-03 1/500
Date Analyzed:	01/31/18	Data File:	013116.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	174 d	31	163
Benzo(a)anthracene-d12	118 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H3A-4N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-04 1/5
Date Analyzed:	02/05/18	Data File:	020506.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	93	24	168

Compounds:	Concentration mg/kg (ppm) Dry Weight
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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H5A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-05 1/1000
Date Analyzed:	01/31/18	Data File:	013117.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	128 d	31	163
Benzo(a)anthracene-d12	57 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	20
Acenaphthylene	<2
Acenaphthene	19
Fluorene	16
Phenanthrene	170
Anthracene	33
Fluoranthene	130
Pyrene	150
Benz(a)anthracene	50
Chrysene	55
Benzo(a)pyrene	53
Benzo(b)fluoranthene	60
Benzo(k)fluoranthene	21
Indeno(1,2,3-cd)pyrene	19
Dibenz(a,h)anthracene	3.9
Benzo(g,h,i)perylene	15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H5A-5N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-06 1/5
Date Analyzed:	01/30/18	Data File:	013009.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	163
Benzo(a)anthracene-d12	113	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.038
Anthracene	<0.01
Fluoranthene	0.030
Pyrene	0.033
Benz(a)anthracene	0.012
Chrysene	0.013
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.011
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:	H4A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-07 1/50
Date Analyzed:	02/01/18	Data File:	013141.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	129 d	31	163
Benzo(a)anthracene-d12	117 d J	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	0.27 J
Benz(a)anthracene	<0.1 J
Chrysene	0.12 J
Benzo(a)pyrene	<0.1 J
Benzo(b)fluoranthene	<0.1 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H4A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-07 1/500
Date Analyzed:	01/30/18	Data File:	013028.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	189 d	31	163
Benzo(a)anthracene-d12	127 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H4A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-08 1/5
Date Analyzed:	01/30/18	Data File:	013016.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	160
Benzo(a)anthracene-d12	113	25	165

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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G6A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-09 1/50
Date Analyzed:	02/01/18	Data File:	013140.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	127 d	31	163
Benzo(a)anthracene-d12	109 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	0.19
Benz(a)anthracene	<0.1
Chrysene	0.16
Benzo(a)pyrene	<0.1 J
Benzo(b)fluoranthene	0.13 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G6A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-09 1/500
Date Analyzed:	01/30/18	Data File:	013029.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	233 d	31	163
Benzo(a)anthracene-d12	153 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	G6A-7N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-10 1/5
Date Analyzed:	01/30/18	Data File:	013012.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	163
Benzo(a)anthracene-d12	114	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: G8A-2F	Client: EcoCon
Date Received: 01/25/18	Project: 0676-01-02, F&BI 801343
Date Extracted: 01/29/18	Lab ID: 801343-11 1/50
Date Analyzed: 01/30/18	Data File: 013024.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	134 d	31	163
Benzo(a)anthracene-d12	113 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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:	G8A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-12 1/5
Date Analyzed:	01/30/18	Data File:	013025.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	163
Benzo(a)anthracene-d12	113	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E9A-1F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-13 1/50
Date Analyzed:	02/01/18	Data File:	013136.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	132 d	31	163
Benzo(a)anthracene-d12	117 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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:	E9A-2N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-14 1/5
Date Analyzed:	01/30/18	Data File:	013026.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	31	163
Benzo(a)anthracene-d12	119	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D9A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-15 1/1000
Date Analyzed:	01/31/18	Data File:	013118.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	164 d	31	163
Benzo(a)anthracene-d12	90 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D9A-2F	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-15 1/50000
Date Analyzed:	02/01/18	Data File:	013135.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	5250 d	31	163
Benzo(a)anthracene-d12	100 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<100
Acenaphthylene	<100
Acenaphthene	<100
Fluorene	<100
Phenanthrene	<100
Anthracene	<100
Fluoranthene	<100
Pyrene	<100
Benz(a)anthracene	<100
Chrysene	<100
Benzo(a)pyrene	<100
Benzo(b)fluoranthene	<100
Benzo(k)fluoranthene	<100
Indeno(1,2,3-cd)pyrene	<100
Dibenz(a,h)anthracene	<100
Benzo(g,h,i)perylene	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D9A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-16 1/50
Date Analyzed:	02/01/18	Data File:	013138.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	139 d	31	163
Benzo(a)anthracene-d12	119 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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 J
Benzo(b)fluoranthene	<0.1 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D9A-3N	Client:	EcoCon
Date Received:	01/25/18	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	801343-16 1/500
Date Analyzed:	01/30/18	Data File:	013027.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	164 d	31	163
Benzo(a)anthracene-d12	116 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801343
Date Extracted:	01/29/18	Lab ID:	08-247 mb 1/5
Date Analyzed:	01/29/18	Data File:	012922.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	79	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: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

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

Laboratory Code: 801343-04 (Matrix Spike Silica Gel)

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	170	106	104	63-146	2

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	112	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL
SAMPLES FOR pH BY METHOD 9045D**

Laboratory Code: 801388-15 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	12 ve	12 ve	nm	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL
SAMPLES FOR pH BY METHOD 9045D**

Laboratory Code: 801343-14 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	7.8	7.7	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020A**

Laboratory Code: 801343-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	3.09	99	93	75-125	6
Cadmium	mg/kg (ppm)	10	<1	96	91	75-125	5
Chromium	mg/kg (ppm)	50	11.6	92	83	75-125	10
Lead	mg/kg (ppm)	50	2.08	91	85	75-125	7
Mercury	mg/kg (ppm)	5	<1	90	87	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	107	80-120
Cadmium	mg/kg (ppm)	10	107	80-120
Chromium	mg/kg (ppm)	50	108	80-120
Lead	mg/kg (ppm)	50	102	80-120
Mercury	mg/kg (ppm)	5	99	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

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

Laboratory Code: 801343-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Phenol	mg/kg (ppm)	0.33	<0.1	89	50-150
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.01	85	50-150
2-Chlorophenol	mg/kg (ppm)	0.33	<0.1	90	44-133
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	82	50-150
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	83	50-150
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	85	50-150
Benzyl alcohol	mg/kg (ppm)	0.33	<0.1	91	50-150
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	<0.01	88	50-150
2-Methylphenol	mg/kg (ppm)	0.33	<0.1	90	42-143
Hexachloroethane	mg/kg (ppm)	0.33	<0.01	86	31-132
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.01	87	50-150
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.2	89	10-250
Nitrobenzene	mg/kg (ppm)	0.33	<0.01	89	50-150
Isophorone	mg/kg (ppm)	0.33	<0.01	89	50-150
2-Nitrophenol	mg/kg (ppm)	0.33	<0.1	96	29-152
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.1	67	16-163
Benzoic acid	mg/kg (ppm)	0.5	<0.5	65	10-250
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.01	86	50-150
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.1	91	39-145
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.01	88	50-150
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.01	85	50-150
4-Chloroaniline	mg/kg (ppm)	0.66	<1	78	23-110
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.1	97	50-150
2-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	89	50-150
1-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	87	50-150
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.03	89	10-151
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	91	38-149
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	92	50-150
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.01	85	50-150
2-Nitroaniline	mg/kg (ppm)	0.33	<0.05	101	50-150
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.1	92	50-150
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	100	50-150
3-Nitroaniline	mg/kg (ppm)	0.66	<1	85	23-119
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.3	91	10-162
Dibenzofuran	mg/kg (ppm)	0.33	<0.01	92	47-149
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	104	50-150
4-Nitrophenol	mg/kg (ppm)	0.33	<0.3	94	10-179
Diethyl phthalate	mg/kg (ppm)	0.33	<0.1	95	50-150
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	93	50-150
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.01	93	50-150
4-Nitroaniline	mg/kg (ppm)	0.66	<1	96	32-135
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.3	96	10-170
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	93	50-150
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.01	88	50-150
Pentachlorophenol	mg/kg (ppm)	0.33	<0.1	95	12-160
Carbazole	mg/kg (ppm)	0.33	<0.1	100	50-150
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.1	107	50-150
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.1	112	50-150
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.16	112	10-250
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.1	111	54-161

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	98	99	51-119	1
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	93	94	60-112	1
2-Chlorophenol	mg/kg (ppm)	0.33	98	99	59-114	1
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	90	91	62-113	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	89	91	61-114	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	91	92	61-113	1
Benzyl alcohol	mg/kg (ppm)	0.33	100	102	50-119	2
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	95	95	59-113	0
2-Methylphenol	mg/kg (ppm)	0.33	96	97	58-115	1
Hexachloroethane	mg/kg (ppm)	0.33	94	95	63-114	1
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	98	101	62-114	3
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	98	100	54-120	2
Nitrobenzene	mg/kg (ppm)	0.33	98	101	59-114	3
Isophorone	mg/kg (ppm)	0.33	99	106	61-113	7
2-Nitrophenol	mg/kg (ppm)	0.33	107	110	59-114	3
2,4-Dimethylphenol	mg/kg (ppm)	0.33	85	87	54-107	2
Benzoic acid	mg/kg (ppm)	0.5	120	123	43-150	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	96	99	60-114	3
2,4-Dichlorophenol	mg/kg (ppm)	0.33	102	103	57-118	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	93	96	56-112	3
Hexachlorobutadiene	mg/kg (ppm)	0.33	92	94	60-116	2
4-Chloroaniline	mg/kg (ppm)	0.66	61	56	10-126	9
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	97	104	59-115	7
2-Methylnaphthalene	mg/kg (ppm)	0.33	97	102	60-115	5
1-Methylnaphthalene	mg/kg (ppm)	0.33	95	102	70-130	7
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	117 vo	110 vo	41-107	6
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	104	104	47-119	0
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	101	104	61-121	3
2-Chloronaphthalene	mg/kg (ppm)	0.33	97	97	58-114	0
2-Nitroaniline	mg/kg (ppm)	0.33	104	109	55-119	5
Dimethyl phthalate	mg/kg (ppm)	0.33	90	100	58-116	11
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	101	110	57-119	9
3-Nitroaniline	mg/kg (ppm)	0.66	79	85	10-143	7
2,4-Dinitrophenol	mg/kg (ppm)	0.33	101	113	40-122	11
Dibenzofuran	mg/kg (ppm)	0.33	95	100	56-115	5
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	99	113	53-126	13
4-Nitrophenol	mg/kg (ppm)	0.33	94	108	40-124	14
Diethyl phthalate	mg/kg (ppm)	0.33	89	103	57-116	15
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	93	100	54-119	7
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	97	94	54-113	3
4-Nitroaniline	mg/kg (ppm)	0.66	100	99	47-109	1
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	105	109	55-147	4
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	100	99	56-116	1
Hexachlorobenzene	mg/kg (ppm)	0.33	94	95	57-115	1
Pentachlorophenol	mg/kg (ppm)	0.33	105	110	45-123	5
Carbazole	mg/kg (ppm)	0.33	99	103	57-116	4
Di-n-butyl phthalate	mg/kg (ppm)	0.33	107	114	56-118	6
Benzyl butyl phthalate	mg/kg (ppm)	0.33	111	111	56-122	0
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	111	112	56-155	1
Di-n-octyl phthalate	mg/kg (ppm)	0.33	100	117	58-120	16

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/05/18

Date Received: 01/25/18

Project: 0676-01-02, F&BI 801343

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

Laboratory Code: 801343-02 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	89	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	92	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	89	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	91	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	90	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	89	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	93	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	88	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	95	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	95	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	99	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	92	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	90	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	96	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	93	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	88	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	94	95	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	95	95	54-121	0
Acenaphthene	mg/kg (ppm)	0.17	93	94	54-123	1
Fluorene	mg/kg (ppm)	0.17	96	95	56-127	1
Phenanthrene	mg/kg (ppm)	0.17	93	93	55-122	0
Anthracene	mg/kg (ppm)	0.17	90	93	50-120	3
Fluoranthene	mg/kg (ppm)	0.17	97	95	54-129	2
Pyrene	mg/kg (ppm)	0.17	92	94	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	97	98	51-115	1
Chrysene	mg/kg (ppm)	0.17	96	100	55-129	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	101	103	56-123	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	100	96	54-131	4
Benzo(a)pyrene	mg/kg (ppm)	0.17	94	94	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	90	97	49-148	7
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	90	99	50-141	10
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	83	92	52-131	10

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.

801343

SAMPLE CHAIN OF CUSTODY

ME 01/23/18

Send Report to David & Patricia

Company ECL

Address PO Box 153

City, State, ZIP Fox Island WA 98333

Phone # Fax #

Email Address Paul@Ecl.com.us
Spencer@Ecl.com.us

SAMPLERS (signature)

PROJECT NAME/NO.

0676-01-02

PO # 0676-01-02

PROJECT ADDRESS

ELECTRONIC DATA REQUESTED

TURNAROUND TIME

Standard Turnaround

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

Samples Received at °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	MTCA 5 metals	PH	Notes
GZA-3F	01AF	1/24/18	0930	S	5	X	X	X	X	X	X	X	X	Silica Gel
GZA-4N	02		0935	S	5	X	X	X	X	X	X	X	X	on Dr per Kc
H3A-2F	03		1000	S	5	X	X	X	X	X	X	X	X	1/25/18 M4
H3A-4N	04		1005	S	5	X	X	X	X	X	X	X	X	
H3A-2F	05		1025	S	5	X	X	X	X	X	X	X	X	
H3A-5N	06		1035	S	5	X	X	X	X	X	X	X	X	
H4A-2F	07		1115	S	5	X	X	X	X	X	X	X	X	
H4A-3N	08		1125	S	5	X	X	X	X	X	X	X	X	
H4A-2F	09		1205	S	5	X	X	X	X	X	X	X	X	
H4A-7N	10		1215	S	5	X	X	X	X	X	X	X	X	

SIGNATURE

Relinquished by:

Received by:

Relinquished by:

Received by:

PRINT NAME

Relinquished by:

Received by:

Relinquished by:

COMPANY

Relinquished by:

Received by:

Relinquished by:

DATE

Relinquished by:

Received by:

Relinquished by:

TIME

Relinquished by:

Received by:

Relinquished by:

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: [Signature]
Received by: [Signature]
Relinquished by: [Signature]
Received by: [Signature]
PRINT NAME: Feder Reed
COMPANY: ECL
DATE: 1/25/18 TIME: 1055
DATE: 1/25 TIME: 1055
DATE: 1-25 TIME: 12:15

Samples received at 4 °C

801343

SAMPLE CHAIN OF CUSTODY

ME 01/25/18 151/

Send Report To Paul & PhilkaCompany ECIAddress PO Box 153City, State, ZIP Fox Island WA 98533

Phone # _____ Fax # _____

Email Address

Paul & Philka
Spencer & Spencer

SAMPLERS (signature)

PROJECT NAME/NO.

0676-01-02

PO #

0676-01-02

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

Page #

2

of

7

B14

TURNAROUND TIME

• Standard Turnaround

RUSH

SAMPLE DISPOSAL

• Dispose after 30 days

• Return samples

• Will call with instructions

Samples Received at _____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	
GGA-2F	11 AF	12/18	1210	S	5	X	X	X	X	X	X	
GGA-3N	12		1220	S	5	X	X	X	X	X	X	
DEGA-1F	13		1225	S	5	X	X	X	X	X	X	
EQA-2N	14		1230	S	5	X	X	X	X	X	X	
DGA-2F	15		1245	S	5	X	X	X	X	X	X	
DGA-3N	16		1255	S	5	X	X	X	X	X	X	

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Kater Reed

ECI

12/18

1055

Received by:

D Smith

FOX ISLAND

1/5

1055

Relinquished by:

D Smith

FOX ISLAND

1/5

1055

Received by:

D Smith

FOX ISLAND

1/5

1055

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

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

February 16, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the additional results from the testing of material submitted on January 25, 2018 from the 0676-01-02, F&BI 801343 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
EMS0216R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 25, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-02, F&BI 801343 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
801343 -01	G2A-3F
801343 -02	G2A-4N
801343 -03	H3A-2F
801343 -04	H3A-4N
801343 -05	H5A-2F
801343 -06	H5A-5N
801343 -07	H4A-2F
801343 -08	H4A-3N
801343 -09	G6A-2F
801343 -10	G6A-7N
801343 -11	G8A-2F
801343 -12	G8A-3N
801343 -13	E9A-1F
801343 -14	E9A-2N
801343 -15	D9A-2F
801343 -16	D9A-3N

Samples G2A-3F, H3A-2F, H5A-2F, H4A-2F, G6A-2F, and D9A-2F were sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed.



Fremont
Analytical

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: 801343
Work Order Number: 1802084

February 13, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 6 sample(s) on 2/7/2018 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CLIENT: Friedman & Bruya
Project: 801343
Work Order: 1802084

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1802084-001	G2A-3F	01/24/2018 9:30 AM	02/07/2018 2:27 PM
1802084-002	H3A-2F	01/24/2018 10:00 AM	02/07/2018 2:27 PM
1802084-003	H5A-2F	01/24/2018 10:25 AM	02/07/2018 2:27 PM
1802084-004	H4A-2F	01/24/2018 11:15 AM	02/07/2018 2:27 PM
1802084-005	G6A-2F	01/24/2018 12:05 PM	02/07/2018 2:27 PM
1802084-006	D9A-2F	01/24/2018 12:45 PM	02/07/2018 2:27 PM

CLIENT: Friedman & Bruya**Project:** 801343

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1802084
Date Reported: 2/13/2018

CLIENT: Friedman & Bruya
Project: 801343

Lab ID: 1802084-001

Client Sample ID: G2A-3F

Collection Date: 1/24/2018 9:30:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	11.4	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.541		mg/Kg-dry	1	2/13/2018 10:13:00 AM

Lab ID: 1802084-002

Client Sample ID: H3A-2F

Collection Date: 1/24/2018 10:00:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	17.7	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.593		mg/Kg-dry	1	2/13/2018 10:17:00 AM

Lab ID: 1802084-003

Client Sample ID: H5A-2F

Collection Date: 1/24/2018 10:25:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	28.9	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.688		mg/Kg-dry	1	2/13/2018 10:20:00 AM

Original



Work Order: 1802084

Date Reported: 2/13/2018

CLIENT: Friedman & Bruya

Project: 801343

Lab ID: 1802084-004

Client Sample ID: H4A-2F

Collection Date: 1/24/2018 11:15:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	11.2	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.539		mg/Kg-dry	1	2/13/2018 10:24:00 AM

Lab ID: 1802084-005

Client Sample ID: G6A-2F

Collection Date: 1/24/2018 12:05:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	13.6	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.541		mg/Kg-dry	1	2/13/2018 10:28:00 AM



Analytical Report

Work Order: 1802084

Date Reported: 2/13/2018

CLIENT: Friedman & Bruya

Project: 801343

Lab ID: 1802084-006

Client Sample ID: D9A-2F

Collection Date: 1/24/2018 12:45:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	14.8	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.564		mg/Kg-dry	1	2/13/2018 10:32:00 AM



Work Order: 1802084
CLIENT: Friedman & Bruya
Project: 801343

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID	MB-19779	SampType: MBLK			Units: mg/Kg		Prep Date: 2/12/2018			RunNo: 41687		
Client ID:	MBLKS	Batch ID: 19779			Analysis Date: 2/13/2018					SeqNo: 803591		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Chromium, Hexavalent ND 0.500

Sample ID	LCS-19779	SampType:	LCS	Units:	mg/Kg	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	LCSS	Batch ID:	19779	Analysis Date:				2/13/2018	SeqNo:	803592	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 2.41 0.500 2.500 0 96.2 65 135

Sample ID	1802085-003ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	BATCH	Batch ID:	19779			Analysis Date:	2/13/2018	SeqNo:	803604		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 0.604 0.531 0.6500 7.41 30

Sample ID	1802085-003AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	BATCH	Batch ID:	19779	Analysis Date:				2/13/2018	SeqNo:	803605	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 1.22 0.530 2.652 0.6500 21.6 65 135 S

NOTES:

S - Outlying spike recovery observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID	1802085-003AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	BATCH	Batch ID:	19779	Analysis Date:	2/13/2018	SeqNo:	803606				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 1.26 0.521 2.607 0.6500 23.5 65 135 1.224 3.20 30 S

NOTES:

S - Outlying spike recovery observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: 1802084
CLIENT: Friedman & Bruya
Project: 801343

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	1802084-001ADUP		SampType:		DUP		Units:		wt%		Prep Date:		2/9/2018		RunNo:		41643	
Client ID:	G2A-3F		Batch ID:		R41643						Analysis Date:		2/9/2018		SeqNo:		802800	
Analyte	Result		RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual						
Percent Moisture	9.91		0.500						11.43	14.3	10	R						

Sample ID	1802106-004ADUP			SampType:	DUP			Units:	wt%			Prep Date:	2/9/2018			RunNo:	41643									
Client ID:	BATCH			Batch ID:	R41643							Analysis Date:	2/9/2018			SeqNo:	802813									
Analyte				Result			RL		SPK value			SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual
Percent Moisture				13.9			0.500													14.02		0.728		10		

Client Name: **FB**
 Logged by: **Brianna Barnes**

Work Order Number: **1802084**
 Date Received: **2/7/2018 2:27:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 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 ☐
 12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 14. Does paperwork match bottle labels? Yes ☒ No ☐
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 16. Is it clear what analyses were requested? Yes ☒ No ☐
 17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

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

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	2.8
Sample	3.8

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

1902084

(

SUBCONTRACTOR
Fremont

PROJECT NAME/NO.

Q61343

A-262

REMARKS

Please Email Results

Please Email results

☒ Standard (**6** Weeks)
☐ RUSH _____
 Rush charges authorized _____

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

[illegible]

SIGNATURE _____

Michael Erdahl

Friedman and Bruva

DATE _____

TIME

Received by: [Signature]

Pačariška

3

7/10

17.

Relinquished by:

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100

1

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Received by:

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801343

SAMPLE CHAIN OF CUSTODY

ME 01/23/18

Send Report to David & Patricia

Company ECL

Address PO Box 153

City, State, ZIP Fox Island WA 98333

Phone # Fax #

Email Address Paul@Ecl.com
Spencer@Ecl.com

SAMPLERS (signature) [Signature]
PROJECT NAME/NO. 0676-01-02
PO # 0676-01-02

PROJECT ADDRESS

ELECTRONIC DATA REQUESTED

TURNAROUND TIME
Standard Turnaround
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
• Dispose after 30 days
• Return samples
• Will call with instructions
Samples Received at 4 °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	MTCA 5 metals	PH	Notes
GZA-3F	01AF	1/24/18	0930	S	5	X	X	X	X	X	X	X	X	Silica Gel
GZA-4N	02		0935	S	5	X	X	X	X	X	X	X	X	on Dr per Kc
H3A-2F	03		1000	S	5	X	X	X	X	X	X	X	X	1/25/18 M4
H3A-4N	04		1005	S	5	X	X	X	X	X	X	X	X	
H3A-2F	05		1025	S	5	X	X	X	X	X	X	X	X	
H3A-5N	06		1035	S	5	X	X	X	X	X	X	X	X	
H4A-2F	07		1115	S	5	X	X	X	X	X	X	X	X	
H4A-3N	08		1125	S	5	X	X	X	X	X	X	X	X	
H4A-2F	09		1205	S	5	X	X	X	X	X	X	X	X	
H4A-7N	10		1215	S	5	X	X	X	X	X	X	X	X	

SIGNATURE
Relinquished by: [Signature]
PRINT NAME
Relinquished by: David Reed
COMPANY
Relinquished by: ECL
DATE
Relinquished by: 1/25/18
TIME
Relinquished by: 1055

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

Received by: [Signature]
DATE
Received by: David
TIME
Received by: 1-25
TIME
Received by: 12-15

Samples received at 4 °C

ME 01/28/18 VS1/

Parvilococcus
Spencerlococcus

Page # 2 of 3

TURNAROUND TIME

☒ Standard Turnaround

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

- Dispose after 30 days
- Return samples
- Will call with instructions

Samples Received at _____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED								Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	MTCA5 Metals	PH	
G9A-2F	11 AF	12/4/18	1210	S	5	X				X				
G9A-3N	12		1220	S	5	X				X				
DE9A-1F	13		1225	S	5	X				X				
E9A-2N	14		1230	S	5	X				X				
D9A-2F	15		1245	S	5	X				X				
D9A-3N	16		1255	S	5	X				X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Kater Reed	ICA	1/25/18	1055
Received by: 	Q Smith	FELIXSON	1/25	1055
Relinquished by:				
Received by: 	Q Smith	FEB	1-25	12.15

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

February 6, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on January 29, 2018 from the 0676-01-02, F&BI 801388 project. There are 106 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Steve Spencer
EMS0206R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 29, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-02, F&BI 801388 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
801388 -01	C7-12
801388 -02	C7-16
801388 -03	C6-8
801388 -04	C6-12
801388 -05	B7-2
801388 -06	B7-8
801388 -07	B5-3F
801388 -08	B5-7N
801388 -09	C5-3F
801388 -10	C5-11N
801388 -11	D4-3F
801388 -12	D4-8N
801388 -13	E4-2F
801388 -14	E4-5N
801388 -15	F4N-2F
801388 -16	F4N-6N
801388 -17	F4S-2F
801388 -18	F4S-5N
801388 -19	F6-2F
801388 -20	F6-5N
801388 -21	E7N-2F
801388 -22	E7N-8N
801388 -23	D8N-2F
801388 -24	D8N-7N
801388 -25	Trip Blanks

Samples C5-11N, D4-8N, E4-2F, and E4-5N were sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed

.

The 9045D pH samples F4N-2F and D8N-2F exceeded the calibration range of the method. The data were flagged accordingly.

An 8270D SIM internal standard failed the acceptance criteria for samples C7-12, C7-16, C5-11N, F4S-2F, and D8N-2F due to matrix interferences. The data were flagged accordingly. The samples were diluted and reanalyzed.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE (continued)

An 8270D internal standard failed the acceptance criteria for samples C7-12, F4S-2F, and D8N-2F due to matrix interferences. The data were flagged accordingly. The samples were diluted and reanalyzed.

Hexachlorocyclopentadiene in the 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the samples, therefore the data were acceptable.

An internal standard failure in the 8270D matrix spike caused several compounds to exceed the calibration range of the instrument. The results were consistent with the interferences present in the source sample, therefore the results were considered due to matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18
Date Received: 01/29/18
Project: 0676-01-02, F&BI 801388
Date Extracted: 01/31/18
Date Analyzed: 01/31/18

**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)
C7-12 801388-01	<5	105
C7-16 801388-02	<5	105
C6-8 801388-03	<5	79
C6-12 801388-04	<5	108
B7-2 801388-05	<5	87
B7-8 801388-06	<5	110
B5-3F 801388-07	<5	99
B5-7N 801388-08	<5	84
Method Blank 08-226 MB	<5	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

Date Extracted: 01/30/18

Date Analyzed: 01/30/18 and 01/31/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
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)
C7-12 801388-01	<50	<250	106
C7-16 801388-02	<50	680	101
C6-8 801388-03	<50	<250	104
C6-12 801388-04	<50	<250	103
B7-2 801388-05	<50	<250	102
B7-8 801388-06	<50	<250	102
B5-3F 801388-07	<50	<250	105
B5-7N 801388-08	<50	<250	105
C5-3F 801388-09	570	430	95
C5-11N 801388-10	<50	610	102
D4-3F 801388-11	<50	<250	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

Date Extracted: 01/30/18

Date Analyzed: 01/30/18 and 01/31/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
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)
D4-8N 801388-12	<50	<250	104
E4-2F 801388-13	<50	<250	102
E4-5N 801388-14	<50	<250	99
F4N-2F 801388-15	<50	<250	103
F4N-6N 801388-16	<50	<250	106
F4S-2F 801388-17	78 x	570	108
F4S-5N 801388-18	<50	<250	101
F6-2F 801388-19	100 x	<250	100
F6-5N 801388-20	<50	<250	105
E7N-2F 801388-21	<50	<250	103
E7N-8N 801388-22	<50	<250	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

Date Extracted: 01/30/18

Date Analyzed: 01/30/18 and 01/31/18

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

**Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 56-165)
D8N-2F	69 x	740	100
801388-23			
D8N-7N	<50	<250	100
801388-24			
Method Blank	<50	<250	102
08-248 MB2			
Method Blank	<50	<250	103
08-250 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18
Date Received: 01/29/18
Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18
Date Analyzed: 01/30/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR pH
USING EPA METHOD 9045D**

<u>Sample ID</u> Laboratory ID	<u>pH</u>
C7-12 801388-01	7.7
C7-16 801388-02	7.7
C6-8 801388-03	7.7
C6-12 801388-04	7.6
B7-2 801388-05	7.4
B7-8 801388-06	7.6
B5-3F 801388-07	9.5
B5-7N 801388-08	11
C5-3F 801388-09	9.5
C5-11N 801388-10	9.8
D4-3F 801388-11	8.4
D4-8N 801388-12	8.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

Date Extracted: 01/30/18

Date Analyzed: 01/30/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR pH
USING EPA METHOD 9045D**

<u>Sample ID</u> Laboratory ID	<u>pH</u>
E4-2F 801388-13	8.7
E4-5N 801388-14	8.4
F4N-2F 801388-15	12 ve
F4N-6N 801388-16	8.8
F4S-2F 801388-17	8.5
F4S-5N 801388-18	8.1
F6-2F 801388-19	7.8
F6-5N 801388-20	7.8
E7N-2F 801388-21	7.5
E7N-8N 801388-22	7.6
D8N-2F 801388-23	12 ve
D8N-7N 801388-24	8.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C7-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-01
Date Analyzed:	01/31/18	Data File:	801388-01.054
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.62
Cadmium	<1
Chromium	10.5
Lead	4.42
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C7-16	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-02
Date Analyzed:	01/31/18	Data File:	801388-02.055
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.37
Cadmium	<1
Chromium	16.1
Lead	4.07
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C6-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-03
Date Analyzed:	01/31/18	Data File:	801388-03.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.71
Cadmium	<1
Chromium	10.2
Lead	1.66
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C6-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-04
Date Analyzed:	01/31/18	Data File:	801388-04.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.14
Cadmium	<1
Chromium	11.9
Lead	2.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	B7-2	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-05
Date Analyzed:	01/31/18	Data File:	801388-05.058
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.67
Cadmium	<1
Chromium	11.8
Lead	2.53
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	B7-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-06
Date Analyzed:	01/31/18	Data File:	801388-06.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	1.94
Cadmium	<1
Chromium	14.3
Lead	1.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	B5-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-07
Date Analyzed:	01/31/18	Data File:	801388-07.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.23
Cadmium	<1
Chromium	12.4
Lead	3.85
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	B5-7N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-08
Date Analyzed:	01/31/18	Data File:	801388-08.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.35
Cadmium	<1
Chromium	13.8
Lead	2.51
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C5-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-09
Date Analyzed:	01/31/18	Data File:	801388-09.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	11.9
Cadmium	<1
Chromium	6.78
Lead	7.99
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C5-11N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-10
Date Analyzed:	01/31/18	Data File:	801388-10.063
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.73
Cadmium	<1
Chromium	10.7
Lead	1.93
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D4-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-11
Date Analyzed:	01/31/18	Data File:	801388-11.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.28
Cadmium	<1
Chromium	12.2
Lead	2.29
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D4-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-12
Date Analyzed:	01/31/18	Data File:	801388-12.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.41
Cadmium	<1
Chromium	9.42
Lead	2.19
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E4-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-13
Date Analyzed:	01/31/18	Data File:	801388-13.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.66
Cadmium	<1
Chromium	12.8
Lead	2.75
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E4-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-14
Date Analyzed:	01/31/18	Data File:	801388-14.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.32
Cadmium	<1
Chromium	10.3
Lead	2.07
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F4N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-15
Date Analyzed:	01/31/18	Data File:	801388-15.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.06
Cadmium	<1
Chromium	31.7
Lead	4.60
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F4N-6N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-16
Date Analyzed:	01/31/18	Data File:	801388-16.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.39
Cadmium	<1
Chromium	20.2
Lead	2.49
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F4S-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-17
Date Analyzed:	01/31/18	Data File:	801388-17.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	8.28
Cadmium	<1
Chromium	17.6
Lead	31.6
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F4S-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-18
Date Analyzed:	01/31/18	Data File:	801388-18.075
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.75
Cadmium	<1
Chromium	11.3
Lead	2.10
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F6-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-19
Date Analyzed:	01/31/18	Data File:	801388-19.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	29.5
Cadmium	<1
Chromium	16.4
Lead	29.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F6-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-20
Date Analyzed:	01/31/18	Data File:	801388-20.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.10
Cadmium	<1
Chromium	10.5
Lead	1.98
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E7N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-21
Date Analyzed:	01/31/18	Data File:	801388-21.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.18
Cadmium	<1
Chromium	9.88
Lead	3.65
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E7N-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-22
Date Analyzed:	01/31/18	Data File:	801388-22.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.31
Cadmium	<1
Chromium	14.3
Lead	4.00
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D8N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-23
Date Analyzed:	01/31/18	Data File:	801388-23.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	7.29
Cadmium	<1
Chromium	20.5
Lead	9.09
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	D8N-7N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	801388-24
Date Analyzed:	01/31/18	Data File:	801388-24.104
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	3.77
Cadmium	<1
Chromium	10.2
Lead	5.57
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	I8-071 mb
Date Analyzed:	01/31/18	Data File:	I8-071 mb.043
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/31/18	Lab ID:	I8-072 mb
Date Analyzed:	01/31/18	Data File:	I8-072 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C7-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-01 1/5
Date Analyzed:	02/02/18	Data File:	020142.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	31	163
Benzo(a)anthracene-d12	100	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	0.011
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01 J
Benzo(b)fluoranthene	<0.01 J
Benzo(k)fluoranthene	<0.01 J
Indeno(1,2,3-cd)pyrene	<0.01 J
Dibenz(a,h)anthracene	<0.01 J
Benzo(g,h,i)perylene	<0.01 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C7-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-01 1/50
Date Analyzed:	02/02/18	Data File:	020227.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	127 d	31	163
Benzo(a)anthracene-d12	112 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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:	C7-16	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-02 1/10
Date Analyzed:	02/02/18	Data File:	020230.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	116 d	31	163
Benzo(a)anthracene-d12	115 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.02
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	0.022
Pyrene	0.030
Benz(a)anthracene	<0.02
Chrysene	0.026
Benzo(a)pyrene	<0.02 J
Benzo(b)fluoranthene	0.032 J
Benzo(k)fluoranthene	<0.02 J
Indeno(1,2,3-cd)pyrene	<0.02 J
Dibenz(a,h)anthracene	<0.02 J
Benzo(g,h,i)perylene	<0.02 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C7-16	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-02 1/50
Date Analyzed:	02/02/18	Data File:	020139.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	137 d	31	163
Benzo(a)anthracene-d12	123 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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:	C6-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-03 1/5
Date Analyzed:	01/31/18	Data File:	013121.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	163
Benzo(a)anthracene-d12	118	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: C6-12	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-04 1/5
Date Analyzed: 01/31/18	Data File: 013122.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	163
Benzo(a)anthracene-d12	106	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B7-2	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-05 1/5
Date Analyzed:	01/31/18	Data File:	013123.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	163
Benzo(a)anthracene-d12	117	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B7-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-06 1/5
Date Analyzed:	01/31/18	Data File:	013124.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	163
Benzo(a)anthracene-d12	114	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B5-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-07 1/5
Date Analyzed:	01/31/18	Data File:	013125.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	31	163
Benzo(a)anthracene-d12	116	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B5-7N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-08 1/5
Date Analyzed:	01/31/18	Data File:	013126.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	31	163
Benzo(a)anthracene-d12	119	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: C5-3F	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-09 1/5
Date Analyzed: 01/31/18	Data File: 013127.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	31	163
Benzo(a)anthracene-d12	126	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.059
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.014
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:	C5-11N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-10 1/50
Date Analyzed:	02/02/18	Data File:	020229.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	136 d	31	163
Benzo(a)anthracene-d12	121 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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 J
Benzo(b)fluoranthene	<0.1 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C5-11N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-10 1/500
Date Analyzed:	02/02/18	Data File:	020136.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	12 d	31	163
Benzo(a)anthracene-d12	119 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: D4-3F	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-11 1/5
Date Analyzed: 01/30/18	Data File: 013022.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	99	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D4-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-12 1/5
Date Analyzed:	01/31/18	Data File:	013128.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	163
Benzo(a)anthracene-d12	107	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E4-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-13 1/5
Date Analyzed:	01/31/18	Data File:	013129.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	163
Benzo(a)anthracene-d12	104	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E4-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-14 1/5
Date Analyzed:	01/31/18	Data File:	013130.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	105	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F4N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-15 1/5
Date Analyzed:	01/31/18	Data File:	013131.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	163
Benzo(a)anthracene-d12	105	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.50
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.036
Anthracene	<0.01
Fluoranthene	0.011
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:	F4N-6N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-16 1/5
Date Analyzed:	01/31/18	Data File:	013132.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	31	163
Benzo(a)anthracene-d12	105	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F4S-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-17 1/5
Date Analyzed:	02/02/18	Data File:	020141.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	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	0.032
Anthracene	<0.01
Fluoranthene	0.089
Pyrene	0.12
Benz(a)anthracene	0.049
Chrysene	0.066
Benzo(a)pyrene	0.070 J
Benzo(b)fluoranthene	0.14 J
Benzo(k)fluoranthene	0.046 J
Indeno(1,2,3-cd)pyrene	0.033 J
Dibenz(a,h)anthracene	<0.01 J
Benzo(g,h,i)perylene	0.030 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F4S-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-17 1/50
Date Analyzed:	02/02/18	Data File:	020226.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106 d	31	163
Benzo(a)anthracene-d12	98 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
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	0.10
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:	F4S-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-18 1/5
Date Analyzed:	01/31/18	Data File:	013133.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	163
Benzo(a)anthracene-d12	101	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: F6-2F	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-19 1/5
Date Analyzed: 02/01/18	Data File: 013134.D
Matrix: Soil	Instrument: GCMS6
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	163
Benzo(a)anthracene-d12	108	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.015
Anthracene	<0.01
Fluoranthene	0.032
Pyrene	0.032
Benz(a)anthracene	0.012
Chrysene	0.019
Benzo(a)pyrene	0.017
Benzo(b)fluoranthene	0.033
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:	F6-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-20 1/5
Date Analyzed:	02/02/18	Data File:	020135.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	163
Benzo(a)anthracene-d12	99	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E7N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-21 1/5
Date Analyzed:	01/31/18	Data File:	013109.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	102	31	163
Benzo(a)anthracene-d12	126	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E7N-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-22 1/5
Date Analyzed:	01/31/18	Data File:	013107.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	113	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D8N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-23 1/50
Date Analyzed:	02/02/18	Data File:	020140.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	131 d	31	163
Benzo(a)anthracene-d12	109 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	0.11
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1 J
Benzo(b)fluoranthene	<0.1 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J
Benzo(g,h,i)perylene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D8N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-23 1/500
Date Analyzed:	02/02/18	Data File:	020228.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	68 d	31	163
Benzo(a)anthracene-d12	132 d	24	168

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D8N-7N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-24 1/5
Date Analyzed:	01/31/18	Data File:	013110.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	163
Benzo(a)anthracene-d12	114	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	08-253 mb 1/5
Date Analyzed:	01/31/18	Data File:	013106.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	97	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

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	08-252 mb 1/5
Date Analyzed:	01/30/18	Data File:	013021.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	163
Benzo(a)anthracene-d12	97	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

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C7-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-01
Date Analyzed:	02/01/18	Data File:	013130.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	98	56	115
Phenol-d6	95	54	113
Nitrobenzene-d5	97	31	164
2-Fluorobiphenyl	91	47	133
2,4,6-Tribromophenol	88	35	141
Terphenyl-d14	156 J	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	Hexachlorocyclopentadiene	<0.03
Bis(2-chloroethyl) ether	<0.01	2,4,6-Trichlorophenol	<0.1
2-Chlorophenol	<0.1	2,4,5-Trichlorophenol	<0.1
1,3-Dichlorobenzene	<0.01	2-Chloronaphthalene	<0.01
1,4-Dichlorobenzene	<0.01	2-Nitroaniline	<0.05
1,2-Dichlorobenzene	<0.01	Dimethyl phthalate	<0.1
Benzyl alcohol	<0.1	2,6-Dinitrotoluene	<0.05
2,2'-Oxybis(1-chloropropane)	<0.01	3-Nitroaniline	<1
2-Methylphenol	<0.1	2,4-Dinitrophenol	<0.3
Hexachloroethane	<0.01	Dibenzofuran	<0.01
N-Nitroso-di-n-propylamine	<0.01	2,4-Dinitrotoluene	<0.05
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitrophenol	<0.3
Nitrobenzene	<0.01	Diethyl phthalate	<0.1
Isophorone	<0.01	4-Chlorophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	N-Nitrosodiphenylamine	<0.01
2,4-Dimethylphenol	<0.1	4-Nitroaniline	<1
Benzoic acid	<0.5	4,6-Dinitro-2-methylphenol	<0.3
Bis(2-chloroethoxy)methane	<0.01	4-Bromophenyl phenyl ether	<0.01
2,4-Dichlorophenol	<0.1	Hexachlorobenzene	<0.01
1,2,4-Trichlorobenzene	<0.01	Pentachlorophenol	<0.1
Hexachlorobutadiene	<0.01	Carbazole	<0.1
4-Chloroaniline	<1	Di-n-butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benzyl butyl phthalate	<0.1 J
2-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.16 J
1-Methylnaphthalene	<0.01	Di-n-octyl phthalate	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C7-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-01 1/10
Date Analyzed:	01/31/18	Data File:	013041.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	91 d	56	115
Phenol-d6	88 d	54	113
Nitrobenzene-d5	87 d	31	164
2-Fluorobiphenyl	90 d	47	133
2,4,6-Tribromophenol	65 d	35	141
Terphenyl-d14	101 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<1	Hexachlorocyclopentadiene	<0.3
Bis(2-chloroethyl) ether	<0.1	2,4,6-Trichlorophenol	<1
2-Chlorophenol	<1	2,4,5-Trichlorophenol	<1
1,3-Dichlorobenzene	<0.1	2-Chloronaphthalene	<0.1
1,4-Dichlorobenzene	<0.1	2-Nitroaniline	<0.5
1,2-Dichlorobenzene	<0.1	Dimethyl phthalate	<1
Benzyl alcohol	<1	2,6-Dinitrotoluene	<0.5
2,2'-Oxybis(1-chloropropane)	<0.1	3-Nitroaniline	<10
2-Methylphenol	<1	2,4-Dinitrophenol	<3
Hexachloroethane	<0.1	Dibenzofuran	<0.1
N-Nitroso-di-n-propylamine	<0.1	2,4-Dinitrotoluene	<0.5
3-Methylphenol + 4-Methylphenol	<2	4-Nitrophenol	<3
Nitrobenzene	<0.1	Diethyl phthalate	<1
Isophorone	<0.1	4-Chlorophenyl phenyl ether	<0.1
2-Nitrophenol	<1	N-Nitrosodiphenylamine	<0.1
2,4-Dimethylphenol	<1	4-Nitroaniline	<10
Benzoic acid	<5	4,6-Dinitro-2-methylphenol	<3
Bis(2-chloroethoxy)methane	<0.1	4-Bromophenyl phenyl ether	<0.1
2,4-Dichlorophenol	<1	Hexachlorobenzene	<0.1
1,2,4-Trichlorobenzene	<0.1	Pentachlorophenol	<1
Hexachlorobutadiene	<0.1	Carbazole	<1
4-Chloroaniline	<10	Di-n-butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benzyl butyl phthalate	<1
2-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	<1.6
1-Methylnaphthalene	<0.1	Di-n-octyl phthalate	<1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C7-16	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-02 1/50
Date Analyzed:	01/31/18	Data File:	013127.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	118 d	56	115
Phenol-d6	115 d	54	113
Nitrobenzene-d5	112 d	31	164
2-Fluorobiphenyl	113 d	47	133
2,4,6-Tribromophenol	89 d	35	141
Terphenyl-d14	130 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<5	Hexachlorocyclopentadiene	<1.5
Bis(2-chloroethyl) ether	<0.5	2,4,6-Trichlorophenol	<5
2-Chlorophenol	<5	2,4,5-Trichlorophenol	<5
1,3-Dichlorobenzene	<0.5	2-Chloronaphthalene	<0.5
1,4-Dichlorobenzene	<0.5	2-Nitroaniline	<2.5
1,2-Dichlorobenzene	<0.5	Dimethyl phthalate	<5
Benzyl alcohol	<5	2,6-Dinitrotoluene	<2.5
2,2'-Oxybis(1-chloropropane)	<0.5	3-Nitroaniline	<50
2-Methylphenol	<5	2,4-Dinitrophenol	<15
Hexachloroethane	<0.5	Dibenzofuran	<0.5
N-Nitroso-di-n-propylamine	<0.5	2,4-Dinitrotoluene	<2.5
3-Methylphenol + 4-Methylphenol	<10	4-Nitrophenol	<15
Nitrobenzene	<0.5	Diethyl phthalate	<5
Isophorone	<0.5	4-Chlorophenyl phenyl ether	<0.5
2-Nitrophenol	<5	N-Nitrosodiphenylamine	<0.5
2,4-Dimethylphenol	<5	4-Nitroaniline	<50
Benzoic acid	<25	4,6-Dinitro-2-methylphenol	<15
Bis(2-chloroethoxy)methane	<0.5	4-Bromophenyl phenyl ether	<0.5
2,4-Dichlorophenol	<5	Hexachlorobenzene	<0.5
1,2,4-Trichlorobenzene	<0.5	Pentachlorophenol	<5
Hexachlorobutadiene	<0.5	Carbazole	<5
4-Chloroaniline	<50	Di-n-butyl phthalate	<5
4-Chloro-3-methylphenol	<5	Benzyl butyl phthalate	<5
2-Methylnaphthalene	<0.5	Bis(2-ethylhexyl) phthalate	<8
1-Methylnaphthalene	<0.5	Di-n-octyl phthalate	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C6-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-03 1/5
Date Analyzed:	01/31/18	Data File:	013105.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	124 vo	56	115
Phenol-d6	116 vo	54	113
Nitrobenzene-d5	121	31	164
2-Fluorobiphenyl	115	47	133
2,4,6-Tribromophenol	107	35	141
Terphenyl-d14	122	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C6-12	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-04 1/5
Date Analyzed:	01/31/18	Data File:	013106.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	113	56	115
Phenol-d6	109	54	113
Nitrobenzene-d5	111	31	164
2-Fluorobiphenyl	108	47	133
2,4,6-Tribromophenol	94	35	141
Terphenyl-d14	110	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B7-2	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-05 1/5
Date Analyzed:	01/31/18	Data File:	013107.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	123 vo	56	115
Phenol-d6	118 vo	54	113
Nitrobenzene-d5	119	31	164
2-Fluorobiphenyl	115	47	133
2,4,6-Tribromophenol	98	35	141
Terphenyl-d14	112	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B7-8	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-06 1/5
Date Analyzed:	01/31/18	Data File:	013108.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	122 vo	56	115
Phenol-d6	117 vo	54	113
Nitrobenzene-d5	120	31	164
2-Fluorobiphenyl	115	47	133
2,4,6-Tribromophenol	100	35	141
Terphenyl-d14	111	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B5-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-07 1/5
Date Analyzed:	01/31/18	Data File:	013109.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	117 vo	56	115
Phenol-d6	114 vo	54	113
Nitrobenzene-d5	115	31	164
2-Fluorobiphenyl	111	47	133
2,4,6-Tribromophenol	95	35	141
Terphenyl-d14	113	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID: B5-7N	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-08 1/5
Date Analyzed: 01/31/18	Data File: 013110.D
Matrix: Soil	Instrument: GCMS8
Units: mg/kg (ppm) Dry Weight	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	91	56	115
Phenol-d6	112	54	113
Nitrobenzene-d5	123	31	164
2-Fluorobiphenyl	119	47	133
2,4,6-Tribromophenol	21 ip	35	141
Terphenyl-d14	120	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C5-3F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-09 1/5
Date Analyzed:	01/31/18	Data File:	013111.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	110	56	115
Phenol-d6	110	54	113
Nitrobenzene-d5	115	31	164
2-Fluorobiphenyl	106	47	133
2,4,6-Tribromophenol	70	35	141
Terphenyl-d14	126	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C5-11N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-10 1/50
Date Analyzed:	02/02/18	Data File:	020208.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	113 d	56	115
Phenol-d6	106 d	54	113
Nitrobenzene-d5	108 d	31	164
2-Fluorobiphenyl	110 d	47	133
2,4,6-Tribromophenol	75 d	35	141
Terphenyl-d14	109 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<5	Hexachlorocyclopentadiene	<1.5
Bis(2-chloroethyl) ether	<0.5	2,4,6-Trichlorophenol	<5
2-Chlorophenol	<5	2,4,5-Trichlorophenol	<5
1,3-Dichlorobenzene	<0.5	2-Chloronaphthalene	<0.5
1,4-Dichlorobenzene	<0.5	2-Nitroaniline	<2.5
1,2-Dichlorobenzene	<0.5	Dimethyl phthalate	<5
Benzyl alcohol	<5	2,6-Dinitrotoluene	<2.5
2,2'-Oxybis(1-chloropropane)	<0.5	3-Nitroaniline	<50
2-Methylphenol	<5	2,4-Dinitrophenol	<15
Hexachloroethane	<0.5	Dibenzofuran	<0.5
N-Nitroso-di-n-propylamine	<0.5	2,4-Dinitrotoluene	<2.5
3-Methylphenol + 4-Methylphenol	<10	4-Nitrophenol	<15
Nitrobenzene	<0.5	Diethyl phthalate	<5
Isophorone	<0.5	4-Chlorophenyl phenyl ether	<0.5
2-Nitrophenol	<5	N-Nitrosodiphenylamine	<0.5
2,4-Dimethylphenol	<5	4-Nitroaniline	<50
Benzoic acid	<25	4,6-Dinitro-2-methylphenol	<15
Bis(2-chloroethoxy)methane	<0.5	4-Bromophenyl phenyl ether	<0.5
2,4-Dichlorophenol	<5	Hexachlorobenzene	<0.5
1,2,4-Trichlorobenzene	<0.5	Pentachlorophenol	<5
Hexachlorobutadiene	<0.5	Carbazole	<5
4-Chloroaniline	<50	Di-n-butyl phthalate	<5
4-Chloro-3-methylphenol	<5	Benzyl butyl phthalate	<5
2-Methylnaphthalene	<0.5	Bis(2-ethylhexyl) phthalate	<8
1-Methylnaphthalene	<0.5	Di-n-octyl phthalate	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID: D4-3F	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-11 1/5
Date Analyzed: 01/31/18	Data File: 013112.D
Matrix: Soil	Instrument: GCMS8
Units: mg/kg (ppm) Dry Weight	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	117 vo	56	115
Phenol-d6	112	54	113
Nitrobenzene-d5	116	31	164
2-Fluorobiphenyl	112	47	133
2,4,6-Tribromophenol	98	35	141
Terphenyl-d14	114	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D4-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-12 1/5
Date Analyzed:	01/31/18	Data File:	013113.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	108	56	115
Phenol-d6	102	54	113
Nitrobenzene-d5	106	31	164
2-Fluorobiphenyl	102	47	133
2,4,6-Tribromophenol	94	35	141
Terphenyl-d14	105	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E4-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-13 1/5
Date Analyzed:	01/31/18	Data File:	013114.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	107	56	115
Phenol-d6	99	54	113
Nitrobenzene-d5	104	31	164
2-Fluorobiphenyl	100	47	133
2,4,6-Tribromophenol	96	35	141
Terphenyl-d14	110	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID: E4-5N	Client: EcoCon
Date Received: 01/29/18	Project: 0676-01-02, F&BI 801388
Date Extracted: 01/30/18	Lab ID: 801388-14 1/5
Date Analyzed: 01/31/18	Data File: 013117.D
Matrix: Soil	Instrument: GCMS8
Units: mg/kg (ppm) Dry Weight	Operator: ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	111	56	115
Phenol-d6	107	54	113
Nitrobenzene-d5	109	31	164
2-Fluorobiphenyl	105	47	133
2,4,6-Tribromophenol	94	35	141
Terphenyl-d14	109	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F4N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-15 1/5
Date Analyzed:	01/31/18	Data File:	013118.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12 ip	56	115
Phenol-d6	53 ip	54	113
Nitrobenzene-d5	107	31	164
2-Fluorobiphenyl	101	47	133
2,4,6-Tribromophenol	1 ip	35	141
Terphenyl-d14	114	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	1.1	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	0.33	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	0.27	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F4N-6N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-16 1/5
Date Analyzed:	01/31/18	Data File:	013119.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	111	56	115
Phenol-d6	108	54	113
Nitrobenzene-d5	111	31	164
2-Fluorobiphenyl	106	47	133
2,4,6-Tribromophenol	96	35	141
Terphenyl-d14	110	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F4S-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-17 1/5
Date Analyzed:	01/31/18	Data File:	013128.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	102	56	115
Phenol-d6	98	54	113
Nitrobenzene-d5	101	31	164
2-Fluorobiphenyl	97	47	133
2,4,6-Tribromophenol	98	35	141
Terphenyl-d14	117	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F4S-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-18 1/5
Date Analyzed:	02/02/18	Data File:	020206.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	111	56	115
Phenol-d6	106	54	113
Nitrobenzene-d5	114	31	164
2-Fluorobiphenyl	108	47	133
2,4,6-Tribromophenol	87	35	141
Terphenyl-d14	106	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F6-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-19 1/5
Date Analyzed:	01/31/18	Data File:	013121.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	96	56	115
Phenol-d6	92	54	113
Nitrobenzene-d5	96	31	164
2-Fluorobiphenyl	88	47	133
2,4,6-Tribromophenol	83	35	141
Terphenyl-d14	101	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F6-5N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-20 1/5
Date Analyzed:	01/31/18	Data File:	013122.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	103	56	115
Phenol-d6	100	54	113
Nitrobenzene-d5	102	31	164
2-Fluorobiphenyl	97	47	133
2,4,6-Tribromophenol	86	35	141
Terphenyl-d14	95	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E7N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-21 1/5
Date Analyzed:	01/31/18	Data File:	013123.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	124 vo	56	115
Phenol-d6	118 vo	54	113
Nitrobenzene-d5	122	31	164
2-Fluorobiphenyl	116	47	133
2,4,6-Tribromophenol	114	35	141
Terphenyl-d14	127	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E7N-8N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-22 1/5
Date Analyzed:	01/31/18	Data File:	013124.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	121 vo	56	115
Phenol-d6	114 vo	54	113
Nitrobenzene-d5	119	31	164
2-Fluorobiphenyl	113	47	133
2,4,6-Tribromophenol	107	35	141
Terphenyl-d14	122	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D8N-2F	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-23 1/50
Date Analyzed:	01/31/18	Data File:	013129.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	19 d	56	115
Phenol-d6	75 d	54	113
Nitrobenzene-d5	107 d	31	164
2-Fluorobiphenyl	106 d	47	133
2,4,6-Tribromophenol	1 d	35	141
Terphenyl-d14	120 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<5	Hexachlorocyclopentadiene	<1.5
Bis(2-chloroethyl) ether	<0.5	2,4,6-Trichlorophenol	<5
2-Chlorophenol	<5	2,4,5-Trichlorophenol	<5
1,3-Dichlorobenzene	<0.5	2-Chloronaphthalene	<0.5
1,4-Dichlorobenzene	<0.5	2-Nitroaniline	<2.5
1,2-Dichlorobenzene	<0.5	Dimethyl phthalate	<5
Benzyl alcohol	<5	2,6-Dinitrotoluene	<2.5
2,2'-Oxybis(1-chloropropane)	<0.5	3-Nitroaniline	<50
2-Methylphenol	<5	2,4-Dinitrophenol	<15
Hexachloroethane	<0.5	Dibenzofuran	<0.5
N-Nitroso-di-n-propylamine	<0.5	2,4-Dinitrotoluene	<2.5
3-Methylphenol + 4-Methylphenol	<10	4-Nitrophenol	<15
Nitrobenzene	<0.5	Diethyl phthalate	<5
Isophorone	<0.5	4-Chlorophenyl phenyl ether	<0.5
2-Nitrophenol	<5	N-Nitrosodiphenylamine	<0.5
2,4-Dimethylphenol	<5	4-Nitroaniline	<50
Benzoic acid	<25	4,6-Dinitro-2-methylphenol	<15
Bis(2-chloroethoxy)methane	<0.5	4-Bromophenyl phenyl ether	<0.5
2,4-Dichlorophenol	<5	Hexachlorobenzene	<0.5
1,2,4-Trichlorobenzene	<0.5	Pentachlorophenol	<5
Hexachlorobutadiene	<0.5	Carbazole	<5
4-Chloroaniline	<50	Di-n-butyl phthalate	<5
4-Chloro-3-methylphenol	<5	Benzyl butyl phthalate	<5
2-Methylnaphthalene	<0.5	Bis(2-ethylhexyl) phthalate	<8
1-Methylnaphthalene	<0.5	Di-n-octyl phthalate	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D8N-7N	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	801388-24 1/5
Date Analyzed:	01/31/18	Data File:	013125.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	115	56	115
Phenol-d6	109	54	113
Nitrobenzene-d5	112	31	164
2-Fluorobiphenyl	106	47	133
2,4,6-Tribromophenol	105	35	141
Terphenyl-d14	116	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	08-246 mb2 1/5
Date Analyzed:	01/31/18	Data File:	013104.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	103	56	115
Phenol-d6	99	54	113
Nitrobenzene-d5	103	31	164
2-Fluorobiphenyl	98	47	133
2,4,6-Tribromophenol	78	35	141
Terphenyl-d14	95	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	Hexachlorocyclopentadiene	<0.15
Bis(2-chloroethyl) ether	<0.05	2,4,6-Trichlorophenol	<0.5
2-Chlorophenol	<0.5	2,4,5-Trichlorophenol	<0.5
1,3-Dichlorobenzene	<0.05	2-Chloronaphthalene	<0.05
1,4-Dichlorobenzene	<0.05	2-Nitroaniline	<0.25
1,2-Dichlorobenzene	<0.05	Dimethyl phthalate	<0.5
Benzyl alcohol	<0.5	2,6-Dinitrotoluene	<0.25
2,2'-Oxybis(1-chloropropane)	<0.05	3-Nitroaniline	<5
2-Methylphenol	<0.5	2,4-Dinitrophenol	<1.5
Hexachloroethane	<0.05	Dibenzofuran	<0.05
N-Nitroso-di-n-propylamine	<0.05	2,4-Dinitrotoluene	<0.25
3-Methylphenol + 4-Methylphenol	<1	4-Nitrophenol	<1.5
Nitrobenzene	<0.05	Diethyl phthalate	<0.5
Isophorone	<0.05	4-Chlorophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	N-Nitrosodiphenylamine	<0.05
2,4-Dimethylphenol	<0.5	4-Nitroaniline	<5
Benzoic acid	<2.5	4,6-Dinitro-2-methylphenol	<1.5
Bis(2-chloroethoxy)methane	<0.05	4-Bromophenyl phenyl ether	<0.05
2,4-Dichlorophenol	<0.5	Hexachlorobenzene	<0.05
1,2,4-Trichlorobenzene	<0.05	Pentachlorophenol	<0.5
Hexachlorobutadiene	<0.05	Carbazole	<0.5
4-Chloroaniline	<5	Di-n-butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benzyl butyl phthalate	<0.5
2-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
1-Methylnaphthalene	<0.05	Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801388
Date Extracted:	01/30/18	Lab ID:	08-251 mb
Date Analyzed:	01/30/18	Data File:	013020.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	101	56	115
Phenol-d6	96	54	113
Nitrobenzene-d5	99	31	164
2-Fluorobiphenyl	97	47	133
2,4,6-Tribromophenol	88	35	141
Terphenyl-d14	107	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	Hexachlorocyclopentadiene	<0.03
Bis(2-chloroethyl) ether	<0.01	2,4,6-Trichlorophenol	<0.1
2-Chlorophenol	<0.1	2,4,5-Trichlorophenol	<0.1
1,3-Dichlorobenzene	<0.01	2-Chloronaphthalene	<0.01
1,4-Dichlorobenzene	<0.01	2-Nitroaniline	<0.05
1,2-Dichlorobenzene	<0.01	Dimethyl phthalate	<0.1
Benzyl alcohol	<0.1	2,6-Dinitrotoluene	<0.05
2,2'-Oxybis(1-chloropropane)	<0.01	3-Nitroaniline	<1
2-Methylphenol	<0.1	2,4-Dinitrophenol	<0.3
Hexachloroethane	<0.01	Dibenzofuran	<0.01
N-Nitroso-di-n-propylamine	<0.01	2,4-Dinitrotoluene	<0.05
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitrophenol	<0.3
Nitrobenzene	<0.01	Diethyl phthalate	<0.1
Isophorone	<0.01	4-Chlorophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	N-Nitrosodiphenylamine	<0.01
2,4-Dimethylphenol	<0.1	4-Nitroaniline	<1
Benzoic acid	<0.5	4,6-Dinitro-2-methylphenol	<0.3
Bis(2-chloroethoxy)methane	<0.01	4-Bromophenyl phenyl ether	<0.01
2,4-Dichlorophenol	<0.1	Hexachlorobenzene	<0.01
1,2,4-Trichlorobenzene	<0.01	Pentachlorophenol	<0.1
Hexachlorobutadiene	<0.01	Carbazole	<0.1
4-Chloroaniline	<1	Di-n-butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benzyl butyl phthalate	<0.1
2-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.16
1-Methylnaphthalene	<0.01	Di-n-octyl phthalate	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801334-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	5.4	14	89 a

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801343-04 (Matrix Spike) Silica Gel

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	170	106	104	63-146	2

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	112	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801388-01 (Matrix Spike) Silica Gel

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	110	122	114	63-146	7

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	116	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL
SAMPLES FOR pH BY METHOD 9045D**

Laboratory Code: 801388-15 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	12 ve	12 ve	nm	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL
SAMPLES FOR pH BY METHOD 9045D**

Laboratory Code: 801388-24 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	8.5	8.4	1	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 801369-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.20	80	83	75-125	4
Cadmium	mg/kg (ppm)	10	<1	82	85	75-125	4
Chromium	mg/kg (ppm)	50	8.33	77	81	75-125	5
Lead	mg/kg (ppm)	50	2.38	81	83	75-125	2
Mercury	mg/kg (ppm)	5	<1	81	86	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	108	80-120
Cadmium	mg/kg (ppm)	10	112	80-120
Chromium	mg/kg (ppm)	50	105	80-120
Lead	mg/kg (ppm)	50	111	80-120
Mercury	mg/kg (ppm)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801388-23 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	6.92	89	98	75-125	10
Cadmium	mg/kg (ppm)	10	<1	93	97	75-125	4
Chromium	mg/kg (ppm)	50	19.5	85	90	75-125	6
Lead	mg/kg (ppm)	50	8.64	82	85	75-125	4
Mercury	mg/kg (ppm)	5	<1	89	93	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	103	80-120
Cadmium	mg/kg (ppm)	10	108	80-120
Chromium	mg/kg (ppm)	50	107	80-120
Lead	mg/kg (ppm)	50	109	80-120
Mercury	mg/kg (ppm)	5	103	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801388-11 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	92	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	95	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	92	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	98	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	92	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	92	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	104	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	97	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	99	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	97	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	99	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	98	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	96	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	109	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	104	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	99	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	94	97	58-121	3
Acenaphthylene	mg/kg (ppm)	0.17	96	98	54-121	2
Acenaphthene	mg/kg (ppm)	0.17	93	96	54-123	3
Fluorene	mg/kg (ppm)	0.17	97	100	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	94	96	55-122	2
Anthracene	mg/kg (ppm)	0.17	95	93	50-120	2
Fluoranthene	mg/kg (ppm)	0.17	104	103	54-129	1
Pyrene	mg/kg (ppm)	0.17	95	100	53-127	5
Benz(a)anthracene	mg/kg (ppm)	0.17	98	97	51-115	1
Chrysene	mg/kg (ppm)	0.17	97	97	55-129	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	100	100	56-123	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	96	102	54-131	6
Benzo(a)pyrene	mg/kg (ppm)	0.17	94	95	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	107	111	49-148	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	107	107	50-141	0
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	100	101	52-131	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801388-22 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	94	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	95	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	92	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	96	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	93	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	90	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	101	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	101	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	97	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	94	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	99	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	95	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	90	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	89	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	80	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	93	92	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	95	94	54-121	1
Acenaphthene	mg/kg (ppm)	0.17	93	93	54-123	0
Fluorene	mg/kg (ppm)	0.17	98	96	56-127	2
Phenanthrene	mg/kg (ppm)	0.17	94	93	55-122	1
Anthracene	mg/kg (ppm)	0.17	93	89	50-120	4
Fluoranthene	mg/kg (ppm)	0.17	101	99	54-129	2
Pyrene	mg/kg (ppm)	0.17	97	95	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	98	96	51-115	2
Chrysene	mg/kg (ppm)	0.17	99	97	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	102	98	56-123	4
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	104	99	54-131	5
Benzo(a)pyrene	mg/kg (ppm)	0.17	93	90	51-118	3
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	80	82	49-148	2
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	80	84	50-141	5
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	68	73	52-131	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801343-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Phenol	mg/kg (ppm)	0.33	<0.1	89	50-150
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.01	85	50-150
2-Chlorophenol	mg/kg (ppm)	0.33	<0.1	90	44-133
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	82	50-150
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	83	50-150
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	85	50-150
Benzyl alcohol	mg/kg (ppm)	0.33	<0.1	91	50-150
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	<0.01	88	50-150
2-Methylphenol	mg/kg (ppm)	0.33	<0.1	90	42-143
Hexachloroethane	mg/kg (ppm)	0.33	<0.01	86	31-132
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.01	87	50-150
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.2	89	10-250
Nitrobenzene	mg/kg (ppm)	0.33	<0.01	89	50-150
Isophorone	mg/kg (ppm)	0.33	<0.01	89	50-150
2-Nitrophenol	mg/kg (ppm)	0.33	<0.1	96	29-152
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.1	67	16-163
Benzoic acid	mg/kg (ppm)	0.5	<0.5	65	10-250
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.01	86	50-150
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.1	91	39-145
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.01	88	50-150
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.01	85	50-150
4-Chloroaniline	mg/kg (ppm)	0.66	<1	78	23-110
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.1	97	50-150
2-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	89	50-150
1-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	87	50-150
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.03	89	10-151
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	91	38-149
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	92	50-150
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.01	85	50-150
2-Nitroaniline	mg/kg (ppm)	0.33	<0.05	101	50-150
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.1	92	50-150
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	100	50-150
3-Nitroaniline	mg/kg (ppm)	0.66	<1	85	23-119
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.3	91	10-162
Dibenzofuran	mg/kg (ppm)	0.33	<0.01	92	47-149
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	104	50-150
4-Nitrophenol	mg/kg (ppm)	0.33	<0.3	94	10-179
Diethyl phthalate	mg/kg (ppm)	0.33	<0.1	95	50-150
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	93	50-150
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.01	93	50-150
4-Nitroaniline	mg/kg (ppm)	0.66	<1	96	32-135
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.3	96	10-170
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	93	50-150
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.01	88	50-150
Pentachlorophenol	mg/kg (ppm)	0.33	<0.1	95	12-160
Carbazole	mg/kg (ppm)	0.33	<0.1	100	50-150
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.1	107	50-150
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.1	112	50-150
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.16	112	10-250
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.1	111	54-161

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	98	99	51-119	1
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	93	94	60-112	1
2-Chlorophenol	mg/kg (ppm)	0.33	98	99	59-114	1
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	90	91	62-113	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	89	91	61-114	2
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	91	92	61-113	1
Benzyl alcohol	mg/kg (ppm)	0.33	100	102	50-119	2
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	95	95	59-113	0
2-Methylphenol	mg/kg (ppm)	0.33	96	97	58-115	1
Hexachloroethane	mg/kg (ppm)	0.33	94	95	63-114	1
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	98	101	62-114	3
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	98	100	54-120	2
Nitrobenzene	mg/kg (ppm)	0.33	98	101	59-114	3
Isophorone	mg/kg (ppm)	0.33	99	106	61-113	7
2-Nitrophenol	mg/kg (ppm)	0.33	107	110	59-114	3
2,4-Dimethylphenol	mg/kg (ppm)	0.33	85	87	54-107	2
Benzoic acid	mg/kg (ppm)	0.5	120	123	43-150	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	96	99	60-114	3
2,4-Dichlorophenol	mg/kg (ppm)	0.33	102	103	57-118	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	93	96	56-112	3
Hexachlorobutadiene	mg/kg (ppm)	0.33	92	94	60-116	2
4-Chloroaniline	mg/kg (ppm)	0.66	61	56	10-126	9
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	97	104	59-115	7
2-Methylnaphthalene	mg/kg (ppm)	0.33	97	102	60-115	5
1-Methylnaphthalene	mg/kg (ppm)	0.33	95	102	70-130	7
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	117 vo	110 vo	41-107	6
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	104	104	47-119	0
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	101	104	61-121	3
2-Chloronaphthalene	mg/kg (ppm)	0.33	97	97	58-114	0
2-Nitroaniline	mg/kg (ppm)	0.33	104	109	55-119	5
Dimethyl phthalate	mg/kg (ppm)	0.33	90	100	58-116	11
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	101	110	57-119	9
3-Nitroaniline	mg/kg (ppm)	0.66	79	85	10-143	7
2,4-Dinitrophenol	mg/kg (ppm)	0.33	101	113	40-122	11
Dibenzofuran	mg/kg (ppm)	0.33	95	100	56-115	5
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	99	113	53-126	13
4-Nitrophenol	mg/kg (ppm)	0.33	94	108	40-124	14
Diethyl phthalate	mg/kg (ppm)	0.33	89	103	57-116	15
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	93	100	54-119	7
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	97	94	54-113	3
4-Nitroaniline	mg/kg (ppm)	0.66	100	99	47-109	1
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	105	109	55-147	4
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	100	99	56-116	1
Hexachlorobenzene	mg/kg (ppm)	0.33	94	95	57-115	1
Pentachlorophenol	mg/kg (ppm)	0.33	105	110	45-123	5
Carbazole	mg/kg (ppm)	0.33	99	103	57-116	4
Di-n-butyl phthalate	mg/kg (ppm)	0.33	107	114	56-118	6
Benzyl butyl phthalate	mg/kg (ppm)	0.33	111	111	56-122	0
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	111	112	56-155	1
Di-n-octyl phthalate	mg/kg (ppm)	0.33	100	117	58-120	16

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: 801388-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Phenol	mg/kg (ppm)	0.33	<0.1	88	50-150
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.01	80	50-150
2-Chlorophenol	mg/kg (ppm)	0.33	<0.1	85	44-133
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	60	50-150
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	61	50-150
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	66	50-150
Benzyl alcohol	mg/kg (ppm)	0.33	<0.1	90	50-150
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	<0.01	85	50-150
2-Methylphenol	mg/kg (ppm)	0.33	<0.1	88	42-143
Hexachloroethane	mg/kg (ppm)	0.33	<0.01	61	31-132
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.01	91	50-150
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.2	89	10-250
Nitrobenzene	mg/kg (ppm)	0.33	<0.01	83	50-150
Isophorone	mg/kg (ppm)	0.33	<0.01	90	50-150
2-Nitrophenol	mg/kg (ppm)	0.33	<0.1	89	29-152
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.1	79	16-163
Benzoic acid	mg/kg (ppm)	0.5	<0.5	95	10-250
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.01	86	50-150
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.1	90	39-145
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.01	77	50-150
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.01	71	50-150
4-Chloroaniline	mg/kg (ppm)	0.66	<1	50	23-110
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.1	88	50-150
2-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	85	50-150
1-Methylnaphthalene	mg/kg (ppm)	0.33	<0.01	84	50-150
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.03	43	10-151
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	93	38-149
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	90	50-150
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.01	86	50-150
2-Nitroaniline	mg/kg (ppm)	0.33	<0.05	94	50-150
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.1	81	50-150
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	91	50-150
3-Nitroaniline	mg/kg (ppm)	0.66	<1	62	23-119
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.3	41	10-162
Dibenzofuran	mg/kg (ppm)	0.33	<0.01	86	47-149
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	87	50-150
4-Nitrophenol	mg/kg (ppm)	0.33	<0.3	72	10-179
Diethyl phthalate	mg/kg (ppm)	0.33	<0.1	83	50-150
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	86	50-150
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.01	96	50-150
4-Nitroaniline	mg/kg (ppm)	0.66	<1	72	32-135
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.3	48	10-170
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	93	50-150
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.01	84	50-150
Pentachlorophenol	mg/kg (ppm)	0.33	<0.1	83	12-160
Carbazole	mg/kg (ppm)	0.33	<0.1	83	50-150
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.1	96	50-150
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.1 J	159 vo J	50-150
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.16 J	141 J	10-250
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.1 J	240 vo J	54-161

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/06/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801388

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	93	96	51-119	3
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	89	92	60-112	3
2-Chlorophenol	mg/kg (ppm)	0.33	94	98	59-114	4
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	89	88	62-113	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	89	88	61-114	1
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	89	90	61-113	1
Benzyl alcohol	mg/kg (ppm)	0.33	95	95	50-119	0
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	91	95	59-113	4
2-Methylphenol	mg/kg (ppm)	0.33	91	94	58-115	3
Hexachloroethane	mg/kg (ppm)	0.33	91	92	63-114	1
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	93	88	62-114	6
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	93	92	54-120	1
Nitrobenzene	mg/kg (ppm)	0.33	92	97	59-114	5
Isophorone	mg/kg (ppm)	0.33	97	96	61-113	1
2-Nitrophenol	mg/kg (ppm)	0.33	99	103	59-114	4
2,4-Dimethylphenol	mg/kg (ppm)	0.33	87	85	54-107	2
Benzoic acid	mg/kg (ppm)	0.5	120	126	43-150	5
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	92	92	60-114	0
2,4-Dichlorophenol	mg/kg (ppm)	0.33	96	97	57-118	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	91	97	56-112	6
Hexachlorobutadiene	mg/kg (ppm)	0.33	90	94	60-116	4
4-Chloroaniline	mg/kg (ppm)	0.66	48	53	10-126	10
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	96	104	59-115	8
2-Methylnaphthalene	mg/kg (ppm)	0.33	93	98	60-115	5
1-Methylnaphthalene	mg/kg (ppm)	0.33	92	96	70-130	4
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	96	98	41-107	2
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	94	101	47-119	7
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	95	101	61-121	6
2-Chloronaphthalene	mg/kg (ppm)	0.33	91	94	58-114	3
2-Nitroaniline	mg/kg (ppm)	0.33	103	108	55-119	5
Dimethyl phthalate	mg/kg (ppm)	0.33	95	99	58-116	4
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	104	110	57-119	6
3-Nitroaniline	mg/kg (ppm)	0.66	77	84	10-143	9
2,4-Dinitrophenol	mg/kg (ppm)	0.33	100	104	40-122	4
Dibenzofuran	mg/kg (ppm)	0.33	95	99	56-115	4
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	106	112	53-126	6
4-Nitrophenol	mg/kg (ppm)	0.33	94	101	40-124	7
Diethyl phthalate	mg/kg (ppm)	0.33	97	102	57-116	5
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	96	100	54-119	4
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	90	97	54-113	7
4-Nitroaniline	mg/kg (ppm)	0.66	92	100	47-109	8
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	97	104	55-147	7
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	94	99	56-116	5
Hexachlorobenzene	mg/kg (ppm)	0.33	91	96	57-115	5
Pentachlorophenol	mg/kg (ppm)	0.33	98	105	45-123	7
Carbazole	mg/kg (ppm)	0.33	94	103	57-116	9
Di-n-butyl phthalate	mg/kg (ppm)	0.33	104	115	56-118	10
Benzyl butyl phthalate	mg/kg (ppm)	0.33	102	110	56-122	8
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	104	115	56-155	10
Di-n-octyl phthalate	mg/kg (ppm)	0.33	92	102	58-120	10

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

RE: 801388
Work Order Number: 1801409

February 02, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 4 sample(s) on 1/30/2018 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CLIENT: Friedman & Bruya
Project: 801388
Work Order: 1801409

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801409-001	D4-3F	01/26/2018 12:25 PM	01/30/2018 12:05 PM
1801409-002	D4-8N	01/26/2018 12:30 PM	01/30/2018 12:05 PM
1801409-003	E4-2F	01/26/2018 12:50 PM	01/30/2018 12:05 PM
1801409-004	E4-5N	01/26/2018 12:55 PM	01/30/2018 12:05 PM

CLIENT: Friedman & Bruya**Project:** 801388

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1801409
Date Reported: 2/2/2018

CLIENT: Friedman & Bruya
Project: 801388

Lab ID: 1801409-001
Client Sample ID: D4-3F

Collection Date: 1/26/2018 12:25:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41442 Analyst: CO		
Percent Moisture	13.6	0.500		wt%	1	1/31/2018 1:53:23 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19688 Analyst: KT		
Chromium, Hexavalent	ND	0.576		mg/Kg-dry	1	2/2/2018 7:37:00 AM

Lab ID: 1801409-002
Client Sample ID: D4-8N

Collection Date: 1/26/2018 12:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41442 Analyst: CO		
Percent Moisture	4.33	0.500		wt%	1	1/31/2018 1:53:23 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19688 Analyst: KT		
Chromium, Hexavalent	ND	0.514		mg/Kg-dry	1	2/2/2018 7:41:00 AM

Lab ID: 1801409-003
Client Sample ID: E4-2F

Collection Date: 1/26/2018 12:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41442 Analyst: CO		
Percent Moisture	7.16	0.500		wt%	1	1/31/2018 1:53:23 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19688 Analyst: KT		
Chromium, Hexavalent	ND	0.537		mg/Kg-dry	1	2/2/2018 7:45:00 AM

Original



Work Order: 1801409

Date Reported: 2/2/2018

CLIENT: Friedman & Bruya

Project: 801388

Lab ID: 1801409-004

Client Sample ID: E4-5N

Collection Date: 1/26/2018 12:55:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41442 Analyst: CO		
Percent Moisture	4.19	0.500		wt%	1	1/31/2018 1:53:23 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19688 Analyst: KT		
Chromium, Hexavalent	ND	0.514		mg/Kg-dry	1	2/2/2018 7:56:00 AM

Work Order: 1801409
CLIENT: Friedman & Bruya
Project: 801388

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID	MB-19688	SampType:	MBLK			Units:	mg/Kg			Prep Date:	2/1/2018			RunNo:	41497			
Client ID:	MBLKS	Batch ID:	19688			Analysis Date:						2/2/2018			SeqNo:	799875		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual					
Chromium, Hexavalent		ND	0.500															

Sample ID	LCS-19688	SampType:	LCS	Units:	mg/Kg	Prep Date:	2/1/2018	RunNo:	41497		
Client ID:	LCSS	Batch ID:	19688			Analysis Date:	2/2/2018	SeqNo:	799876		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.52	0.500	2.500	0	101	65	135				

Sample ID	1801406-001ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	2/1/2018	RunNo:	41497		
Client ID:	BATCH	Batch ID:	19688			Analysis Date:	2/2/2018	SeqNo:	799878		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.523						0		30	

Sample ID	1801406-001AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	2/1/2018	RunNo:	41497		
Client ID:	BATCH	Batch ID:	19688	Analysis Date:				2/2/2018	SeqNo:	799879	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1.51	0.521	2.607	0.3769	43.5	65	135				S

NOTES:

S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID	1801406-001AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	2/1/2018	RunNo:	41497		
Client ID:	BATCH	Batch ID:	19688			Analysis Date:	2/2/2018	SeqNo:	799880		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1.28	0.512	2.561	0.3769	35.4	65	135	1.511	16.4	30	S

NOTES:

S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).



Work Order: 1801409
CLIENT: Friedman & Bruya
Project: 801388

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID 1801423-004ADUP		SampType: DUP			Units: wt%		Prep Date: 1/31/2018		RunNo: 41442		
Client ID: BATCH		Batch ID: R41442			Analysis Date: 1/31/2018				SeqNo: 799050		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.93	0.500						6.458	8.57	20	

Sample ID	1801423-017ADUP	SampType:	DUP	Units:	wt%	Prep Date:	1/31/2018	RunNo:	41442		
Client ID:	BATCH	Batch ID:	R41442	Analysis Date:	1/31/2018	SeqNo:	799056				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.91	0.500						5.429	8.40	20	

Client Name: **FB**
 Logged by: **Brianna Barnes**

Work Order Number: **1801409**
 Date Received: **1/30/2018 12:05:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☐ No ☒ NA ☐

Samples received at appropriate temperature

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 ☐
 12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 14. Does paperwork match bottle labels? Yes ☒ No ☐
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 16. Is it clear what analyses were requested? Yes ☒ No ☐
 17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

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

19. Additional remarks:

Item Information

Item #	Temp °C
Sample	7.2

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

1801409
~~18013~~ BB.130

of

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

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
~~Relinquished by:~~ 	Michael Erdahl	Friedman and Bruya	1/30/18	845
Received by: 		FAI	✓ 1/30/18	1202
Relinquished by:				
Received by:				

Page 10 of 10

801388

SAMPLE CHAIN OF CUSTODY

ME

01/29/18

02/05/18

Report To David PoliskaCompany ECTAddress PO BOX 153City, State, ZIP Fox Island, WA 98333Phone David PoliskaEmail David Poliska

SAMPLERS (signature)

PROJECT NAME

0676-01-02

PO #

0676-01-02

REMARKS

Include silica gel

INVOICE TO

☒ Standard Turnaround
☐ RUSH
 Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	PAHs 8270D SIM	MTCA 5 Metals	PH	Notes
C7-12	01A-F	1/26/18	0835	S	6	X	X	X	X	X	X	X	X	
C7-16	02A-F		0840			X	X	X	X	X	X	X	X	
C6-8	03A-F		0910			X	X	X	X	X	X	X	X	
C6-12	04A-F		0915			X	X	X	X	X	X	X	X	
B7-2	05A-F		0935			X	X	X	X	X	X	X	X	
B7-8	06A-F		0940			X	X	X	X	X	X	X	X	
B5-3F	07A-F		1000			X	X	X	X	X	X	X	X	
B5-7N	08A-F		1005			X	X	X	X	X	X	X	X	
C5-3F	09A-F		1050			X	X	X	X	X	X	X	X	
C5-11N	10A-F		1055			X	X	X	X	X	X	X	X	

SIGNATURE

PRINT NAME

COMPANY

DATE TIME

Friedman & Bruja, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by:

Kader Reed

ECT

1/29/18 1200

Received by:

Cady Smith

Fedor Office

1/29/18 1205

Relinquished by:

Nhan Tran

FEBI

1/29/18 1310

Received by:

Nhan Tran

FEBI

1/29/18 1310

SAMPLE CHAIN OF CUSTODY

ME 01/29/18 2 of 3 VWS

Report To David Polivka

Company ECT

Address PO Box 153

City, State, ZIP Fox Island, WA 98333

Phone 509-666-6666 Email spencer@ect.com

SAMPLES (signature)

PROJECT NAME

0676-01-02

PO #

0676-01-02

REMARKS

Include 5, 11 & 6 cell
clean up

INVOICE TO

TURNAROUND TIME
Standard Turnaround
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	PAHs 8270D SIM	PH	Hexavalent Chrome	Notes
~~85-6N~~	~~11 A-F~~	~~12/18~~	~~1125~~	~~U~~	~~10~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~Total 14/10/18~~
D4-3F	11 A-F		1225	3	6									
D4-8N	12		1230											
E4-2F	13		1250											
E4-5N	14		1255											
F4N-2F	15		1320											
F4N-6N	16		1325											
F4S-2F	17		1345											
F4S-5N	18 A-E		1350											
F6-2F	19 A-F		1410											

SIGNATURE

PRINT NAME

COMPANY

DATE TIME

Relinquished by

Relinquished by

Relinquished by

Samples received at

Received by

Received by

Received by

Samples received at

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by	<u>[Signature]</u>	PRINT NAME	<u>Kathleen Reed</u>	COMPANY	<u>ECT</u>	DATE	<u>1/29/18</u>	TIME	<u>1200</u>
Relinquished by	<u>[Signature]</u>	PRINT NAME	<u>Coody Smith</u>	COMPANY	<u>Federal Office</u>	DATE	<u>1/29/18</u>	TIME	<u>1200</u>
Relinquished by	<u>[Signature]</u>	PRINT NAME	<u>When Khan</u>	COMPANY	<u>FERT</u>	DATE	<u>1/29/18</u>	TIME	<u>1310</u>

1501 /

7-874

☐ RUSH _____
Rush charges authorized by:

SAMPLE DISPOSAL

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

[illegible]

Ph. (206) 285-8282

1000

TRIAL

18

000

[illegible]

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

February 16, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the additional results from the testing of material submitted on January 29, 2018 from the 0676-01-02, F&BI 801388 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
EMS0216R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 29, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-02, F&BI 801388 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
801388 -01	C7-12
801388 -02	C7-16
801388 -03	C6-8
801388 -04	C6-12
801388 -05	B7-2
801388 -06	B7-8
801388 -07	B5-3F
801388 -08	B5-7N
801388 -09	C5-3F
801388 -10	C5-11N
801388 -11	D4-3F
801388 -12	D4-8N
801388 -13	E4-2F
801388 -14	E4-5N
801388 -15	F4N-2F
801388 -16	F4N-6N
801388 -17	F4S-2F
801388 -18	F4S-5N
801388 -19	F6-2F
801388 -20	F6-5N
801388 -21	E7N-2F
801388 -22	E7N-8N
801388 -23	D8N-2F
801388 -24	D8N-7N
801388 -25	Trip Blanks

The samples F4N-2F, F4N-6N, and D8N-2F were sent to Fremont Analytical for hexavalent chromium analysis. The report is enclosed.



Fremont
Analytical

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: 801388
Work Order Number: 1802085

February 13, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 2/7/2018 for the analyses presented in the following report.

Hexavalent Chromium by EPA Method 7196
Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 801388
Work Order: 1802085

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1802085-001	F4N-2F	01/20/2018 1:20 PM	02/07/2018 2:27 PM
1802085-002	F4N-6N	01/20/2018 1:25 PM	02/07/2018 2:27 PM
1802085-003	D8N-2F	01/20/2018 3:15 PM	02/07/2018 2:27 PM

CLIENT: Friedman & Bruya**Project:** 801388

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1802085
Date Reported: 2/13/2018

CLIENT: Friedman & Bruya
Project: 801388

Lab ID: 1802085-001

Client Sample ID: F4N-2F

Collection Date: 1/20/2018 1:20:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	10.6	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.558		mg/Kg-dry	1	2/13/2018 10:36:00 AM

Lab ID: 1802085-002

Client Sample ID: F4N-6N

Collection Date: 1/20/2018 1:25:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	3.72	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	ND	0.501		mg/Kg-dry	1	2/13/2018 10:39:00 AM

Lab ID: 1802085-003

Client Sample ID: D8N-2F

Collection Date: 1/20/2018 3:15:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R41643 Analyst: CO		
Percent Moisture	6.78	0.500		wt%	1	2/9/2018 3:23:16 PM
<u>Hexavalent Chromium by EPA Method 7196</u>				Batch ID: 19779 Analyst: KT		
Chromium, Hexavalent	0.650	0.514		mg/Kg-dry	1	2/13/2018 10:43:00 AM

Original



Fremont
Analytical

Analytical Report

Work Order: **1802085**

Date Reported: **2/13/2018**

CLIENT: Friedman & Bruya

Project: 801388



Work Order: 1802085
CLIENT: Friedman & Bruya
Project: 801388

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID	MB-19779	SampType: MBLK			Units: mg/Kg		Prep Date: 2/12/2018			RunNo: 41687		
Client ID:	MBLKS	Batch ID: 19779			Analysis Date: 2/13/2018					SeqNo: 803591		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Chromium, Hexavalent ND 0.500

Sample ID	LCS-19779	SampType:	LCS	Units:	mg/Kg	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	LCSS	Batch ID:	19779	Analysis Date:				2/13/2018	SeqNo:	803592	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 2.41 0.500 2.500 0 96.2 65 135

Sample ID	1802085-003ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	D8N-2F	Batch ID:	19779			Analysis Date:	2/13/2018	SeqNo:	803604		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 0.604 0.531 0.6500 7.41 30

Sample ID	1802085-003AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	2/12/2018	RunNo:	41687		
Client ID:	D8N-2F	Batch ID:	19779	Analysis Date:				2/13/2018	SeqNo:	803605	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 1.22 0.530 2.652 0.6500 21.6 65 135 S

NOTES:

S - Outlying spike recovery observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID	1802085-003AMSD	SampType: MSD			Units: mg/Kg-dry		Prep Date: 2/12/2018			RunNo: 41687		
Client ID:	D8N-2F	Batch ID: 19779			Analysis Date: 2/13/2018				SeqNo: 803606			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Chromium, Hexavalent 1.26 0.521 2.607 0.6500 23.5 65 135 1.224 3.20 30 S

NOTES:

S - Outlying spike recovery observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: 1802085
CLIENT: Friedman & Bruya
Project: 801388

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	1802084-001ADUP	SampType: DUP			Units: wt%		Prep Date: 2/9/2018			RunNo: 41643		
Client ID:	BATCH	Batch ID: R41643			Analysis Date: 2/9/2018			SeqNo: 802800				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Percent Moisture	9.91	0.500						11.43	14.3	10	R	

Sample ID	1802106-004ADUP	SampType: DUP			Units: wt%		Prep Date: 2/9/2018			RunNo: 41643		
Client ID:	BATCH	Batch ID: R41643			Analysis Date: 2/9/2018			SeqNo: 802813				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Percent Moisture	13.9	0.500						14.02	0.728	10		

Client Name: **FB**
 Logged by: **Brianna Barnes**

Work Order Number: **1802085**
 Date Received: **2/7/2018 2:27:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 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 ☐
 12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 14. Does paperwork match bottle labels? Yes ☒ No ☐
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 16. Is it clear what analyses were requested? Yes ☒ No ☐
 17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

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

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	2.8
Sample	3.8

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

1802085

of

Remont

PO#

A-262

Please Email Results

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

TURNAROUND TIME

□ RUSH

rush charges authorized by:

☐ Dispose after 30 days

- ☐ Return samples

☐ Will call with instructionsPhone # (206) 285-8282 Fax # (206) 283-5044[illegible]

3012 16th Avenue West

Ph. (206) 285-8282

Fax (206) 283-5044

Relinquished by: 

COMPANY
Friedman and Bruya

DATE	TIME

81116	13:30

Received by: *[Signature]*

Relinquished by: [Signature]

Casey O'Keefe

FA

2/7/18	1427

Received by:

SAMPLE CHAIN OF CUSTODY

U201/055/

SAMPLERS (signature)

PROJECT NAME

20-10-91-02

FO#

0676-01-02

TURNAROUND TIME

☒ Standard Turnaround
☐ RUSH _____

Rush charges authorized by

REMARKS
Tarred silica gel

INVOICE TO

SAMPLE DISPOSAL

Clear

☐ Other

ANALYSES REQUESTED

ANALYSES REQUESTED						
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	
C7-12	01 A-F	✓ 12/6/18	0835	5	6	☒ TPH-HCID ☒ TPH-Diesel ☒ TPH-Gasoline ☐ BTEX by 8021B ☒ VOCs by 8260C ☒ SVOCs by 8270D ☒ PAHs 8270D SIM ☒ MTLAS Metals ☒ PA ☒ C.VI
C7-16	02 1		0840			
C6-8	03 A-F		0910			
C6-12	04 A-F		0915			
B7-2	05 1		0935			
B7-8	06 1		0940			
B5-3F	07 1		1000			
B5-7N	08 1		1005			
C5-3F	09 1		1050			
C5-11N	10 1		1055			

Notes
 -pe DP
 2/7/18
 m

Friedman & Bruja, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE

PRINT NAME _____

COMPANY

DATE _____

TIME

Relinquished by: _____
Received by: _____

Kayla Reed

FCI

1/62/	1/62/

329	1

Relinquished by [Signature]

Coody Smith

	Lead Office

9/29/16

7200	

Received by: 1/11/00

1971

Samples:	100-

1/2/16

801388

SAMPLE CHAIN OF CUSTODY

ME 01/29/18

Page #

2

of

3

VSS

Report To David PoliskaCompany ECTAddress PO Box 153City, State, ZIP Fox Island WA 98333Phone 509-466-0000 Email gspencer@ect.com

SAMPLERS (signature)

PROJECT NAME

0676-01-02

PO #

0676-01-02

REMARKS Include 3, 11, & 12clean up

INVOICE TO

SAMPLE DISPOSAL

☐ Dispose after 30 days
☐ Archive Samples
☐ Other

TURNAROUND TIME

☒ Standard Turnaround
☐ RUSH

Rush charges authorized by:

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						TPH-HCID	TPH-Diesel 4-DIT	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	PAHs by 8270D	PAHs 8270D SIM	
~~ES-6W~~		~~12/18~~	~~1125~~	~~4~~	~~10~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~total 11/20/18~~
D4-3F	11 A-E		1225	3	6								
D4-8N	12		1230										
E4-2F	13		1250										
E4-5N	14		1255										
F4N-2F	15		1320										
F4N-6N	16		1325										
F4S-2F	17		1345										
F4S-5N	18 A-E		1350										
F6-2F	19 A-E		1410										

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-3029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <u>[Signature]</u>	<u>Kyle Reed</u>	<u>ECT</u>	<u>1/29/18</u>	<u>1200</u>
Relinquished by: <u>[Signature]</u>	<u>Kyle Reed</u>	<u>Federal Office</u>	<u>1/29/18</u>	<u>000</u>
Received by: <u>[Signature]</u>	<u>Wen Pham</u>	<u>FBI</u>	<u>1/29/18</u>	<u>1310</u>

SAMPLE CHAIN OF CUSTODY

ME 01/29/18

10/11/11

Report To David Phillips

Company ECT

Address PO Box 153

City, State, ZIP FOX Island A 98333

Phone _____ Email ssperver@icloud.com

SAMPLERS (signature)
PROJECT NAME

PO#

0676-01-02

20-10-990

REMARKS

MARKS
Include silica gel
cleaning

INVOICE TO

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

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

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

☐ Other

ANALYSES REQUESTED

										ANALYSES REQUESTED					
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars		TPH-HCID	TPH-Diesel + Oil	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	PAHs / SVOCs by 8270D	PAHs 8270D SIM		Notes
F6-5N	RDA-F	9/26/18	1415	S	6		X	X	X		X	X	X		
E7N-2F	R1		1435												
E7N-8N	R2		1440												
D8N-2F	R3	✓	1515												
D8N-7N	R4		1520	✓	✓										
Trip Blank	R5AB				2										* Added at Lab (NP) 01/26/19
						Samples received at 2 ac									

Friedman & Brya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE
~~Relinquished by.~~

PRINT NAME

COMPANY

DATE	TIME

Received by:

Koder Kesh

FD

1/29/18	170

Relinquished by: W. J. Smith

Only Smith

Jeda Office

1200	1/24/8

Received by: *Mid / 1*

171

100

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

February 7, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on January 29, 2018 from the 0676-01-02, F&BI 801389 project. There are 20 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
EMS0207R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 29, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-02, F&BI 801389 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
801389 -01	C5-GW

Samples C5-GW was sent to Fremont Analytical for sulfate and TDS analyses. The report is enclosed.

Sample C5-GW was filtered at Friedman and Bruya on January 30 at 16:01. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18
Date Received: 01/29/18
Project: 0676-01-02, F&BI 801389
Date Extracted: 02/01/18
Date Analyzed: 02/01/18

**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 50-150)
C5-GW 801389-01	<100	100
Method Blank 08-225 MB	<100	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18
Date Received: 01/29/18
Project: 0676-01-02, F&BI 801389
Date Extracted: 01/30/18
Date Analyzed: 01/30/18

**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>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u> <u>(% Recovery)</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(Limit 41-152)
C5-GW 801389-01	190 x	<250	97
Method Blank 08-245 MB2	<50	<250	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

Date Extracted: NA

Date Analyzed: 01/30/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
C5-GW 801389-01	8.9	01/30/18	15:42

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	C5-GW f	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801389
Date Extracted:	02/05/18	Lab ID:	801389-01
Date Analyzed:	02/05/18	Data File:	801389-01.069
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.31
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	Method Blank f	Client:	EcoCon
Date Received:	NA	Project:	0676-01-02, F&BI 801389
Date Extracted:	02/05/18	Lab ID:	I8-082 mb
Date Analyzed:	02/05/18	Data File:	I8-082 mb.067
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	C5-GW	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801389
Date Extracted:	02/01/18	Lab ID:	801389-01
Date Analyzed:	02/02/18	Data File:	801389-01.052
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.61
Cadmium	<1
Chromium	10.8
Copper	17.6
Lead	6.76
Manganese	151
Mercury	<1
Zinc	34.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	0676-01-02, F&BI 801389
Date Extracted:	02/01/18	Lab ID:	I8-077 mb
Date Analyzed:	02/02/18	Data File:	I8-077 mb.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C5-GW	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801389
Date Extracted:	01/31/18	Lab ID:	801389-01
Date Analyzed:	02/01/18	Data File:	020110.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	74	32	162
Phenol-d6	49	10	170
Nitrobenzene-d5	107	50	150
2-Fluorobiphenyl	99	43	158
2,4,6-Tribromophenol	101	43	146
Terphenyl-d14	110	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801389
Date Extracted:	01/31/18	Lab ID:	08-257 mb
Date Analyzed:	02/01/18	Data File:	020106.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63	32	162
Phenol-d6	37	10	170
Nitrobenzene-d5	104	50	150
2-Fluorobiphenyl	100	43	158
2,4,6-Tribromophenol	87	43	146
Terphenyl-d14	100	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C5-GW	Client:	EcoCon
Date Received:	01/29/18	Project:	0676-01-02, F&BI 801389
Date Extracted:	01/31/18	Lab ID:	801389-01
Date Analyzed:	02/02/18	Data File:	020134.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.037
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	0.12
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-02, F&BI 801389
Date Extracted:	01/31/18	Lab ID:	08-256 mb
Date Analyzed:	02/01/18	Data File:	020129.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	98	25	165

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

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

Laboratory Code: 801431-01 (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	97	70-119

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

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

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	112	120	63-142	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 801389-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	8.9	9.1	2	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

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

Laboratory Code: 801389-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.31	111	108	75-125	3
Cadmium	ug/L (ppb)	5	<1	107	106	75-125	1
Chromium	ug/L (ppb)	20	<1	112	106	75-125	6
Copper	ug/L (ppb)	20	<5	105	101	75-125	4
Lead	ug/L (ppb)	10	<1	106	104	75-125	2
Manganese	ug/L (ppb)	20	<1	110	106	75-125	4
Mercury	ug/L (ppb)	5	<1	105	104	75-125	1
Zinc	ug/L (ppb)	50	<5	110	106	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	105	80-120
Cadmium	ug/L (ppb)	5	104	80-120
Chromium	ug/L (ppb)	20	104	80-120
Copper	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	104	80-120
Manganese	ug/L (ppb)	20	104	80-120
Mercury	ug/L (ppb)	5	102	80-120
Zinc	ug/L (ppb)	50	105	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020A**

Laboratory Code: 801430-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	3.22	109	110	70-130	1
Cadmium	ug/L (ppb)	5	<1	107	106	70-130	1
Chromium	ug/L (ppb)	20	1.05	101	100	70-130	1
Copper	ug/L (ppb)	20	5.64	98	99	70-130	1
Lead	ug/L (ppb)	10	1.68	94	94	70-130	0
Manganese	ug/L (ppb)	20	17.0	95	97	70-130	2
Mercury	ug/L (ppb)	5	<1	93	94	70-130	1
Zinc	ug/L (ppb)	50	12.8	103	101	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	108	85-115
Cadmium	ug/L (ppb)	5	104	85-115
Chromium	ug/L (ppb)	20	94	85-115
Copper	ug/L (ppb)	20	102	85-115
Lead	ug/L (ppb)	10	97	85-115
Manganese	ug/L (ppb)	20	96	85-115
Mercury	ug/L (ppb)	5	96	85-115
Zinc	ug/L (ppb)	50	103	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dimethyl phthalate	ug/L (ppb)	10	109	105	55-116	4
Diethyl phthalate	ug/L (ppb)	10	112	108	55-116	4
Di-n-butyl phthalate	ug/L (ppb)	10	113	113	54-115	0
Benzyl butyl phthalate	ug/L (ppb)	10	107	107	53-122	0
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	10	104	111	54-122	7
Di-n-octyl phthalate	ug/L (ppb)	10	92	97	50-131	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/07/18

Date Received: 01/29/18

Project: 0676-01-02, F&BI 801389

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	92	92	67-116	0
Acenaphthylene	ug/L (ppb)	1	91	92	65-119	1
Acenaphthene	ug/L (ppb)	1	91	91	66-118	0
Fluorene	ug/L (ppb)	1	95	95	64-125	0
Phenanthrene	ug/L (ppb)	1	92	93	67-120	1
Anthracene	ug/L (ppb)	1	92	95	65-122	3
Fluoranthene	ug/L (ppb)	1	95	96	65-127	1
Pyrene	ug/L (ppb)	1	93	95	62-130	2
Benz(a)anthracene	ug/L (ppb)	1	96	98	60-118	2
Chrysene	ug/L (ppb)	1	98	98	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	95	98	55-135	3
Benzo(k)fluoranthene	ug/L (ppb)	1	100	102	62-125	2
Benzo(a)pyrene	ug/L (ppb)	1	94	96	58-127	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	92	86	36-142	7
Dibenz(a,h)anthracene	ug/L (ppb)	1	90	76	37-133	17
Benzo(g,h,i)perylene	ug/L (ppb)	1	88	79	34-135	11

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.



Fremont
Analytical

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: 801389
Work Order Number: 1801408

February 02, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 1/30/2018 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0
Total Dissolved Solids (TDS) by SM 2540C

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 801389
Work Order: 1801408

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801408-001	CS-GW	01/26/2018 11:25 AM	01/30/2018 12:05 PM

CLIENT: Friedman & Bruya**Project:** 801389

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1801408
Date Reported: 2/2/2018

Client: Friedman & Bruya

Collection Date: 1/26/2018 11:25:00 AM

Project: 801389

Lab ID: 1801408-001

Matrix: Water

Client Sample ID: CS-GW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Ion Chromatography by EPA Method 300.0

Batch ID: R41460 Analyst: KT

Sulfate	10.4	0.300		mg/L	1	1/31/2018 1:20:00 PM

Total Dissolved Solids (TDS) by SM 2540C

Batch ID: R41470 Analyst: KT

Total Dissolved Solids	250	10.0		mg/L	1	2/1/2018 1:49:10 PM

Work Order: 1801408
CLIENT: Friedman & Bruya
Project: 801389

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	MB-R41460	SampType: MBLK		Units: mg/L		Prep Date: 1/31/2018			RunNo: 41460		
Client ID:	MBLKW	Batch ID: R41460		Analysis Date: 1/31/2018			SeqNo: 799242				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	ND	0.300									

Sample ID	1801407-002ADUP	SampType:	DUP	Units:	mg/L	Prep Date:	1/31/2018	RunNo:	41460		
Client ID:	BATCH	Batch ID:	R41460	Analysis Date:				1/31/2018	SeqNo:	799230	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	0.480	0.300						0.4780	0.418	20	

Sample ID	1801407-002AMS	SampType:	MS	Units:	mg/L	Prep Date:	1/31/2018	RunNo:	41460		
Client ID:	BATCH	Batch ID:	R41460			Analysis Date:	1/31/2018	SeqNo:	799246		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	3.90	0.300	3.750	0.4780	91.1	80	120				

Sample ID	1801407-002AMSD	SampType: MSD			Units: mg/L		Prep Date: 1/31/2018			RunNo: 41460		
Client ID:	BATCH	Batch ID: R41460			Analysis Date: 1/31/2018				SeqNo: 799232			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	3.96	0.300	3.750	0.4780	92.7	80	120	3.895	1.53	20	

Sample ID	LCS-R41460	SampType: LCS			Units: mg/L		Prep Date: 1/31/2018			RunNo: 41460		
Client ID:	LCSW	Batch ID: R41460			Analysis Date: 1/31/2018					SeqNo: 799237		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	3.67	0.300	3.750	0	98.0	90	110				

Work Order: 1801408
CLIENT: Friedman & Bruya
Project: 801389

QC SUMMARY REPORT

Total Dissolved Solids (TDS) by SM 2540C

Sample ID	MB-R41470	SampType:	MBLK	Units:	mg/L	Prep Date:	2/1/2018	RunNo:	41470		
Client ID:	MBLKW	Batch ID:	R41470			Analysis Date:	2/1/2018	SeqNo:	799390		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	5.00									

Sample ID	LCS-R41470	SampType:	LCS	Units:	mg/L	Prep Date:	2/1/2018	RunNo:	41470		
Client ID:	LCSW	Batch ID:	R41470			Analysis Date:	2/1/2018	SeqNo:	799391		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	324	10.0	300.0	0	108	65	135				

Sample ID	1801408-001BDUP	SampType:	DUP	Units:	mg/L	Prep Date:	2/1/2018	RunNo:	41470		
Client ID:	CS-GW	Batch ID:	R41470			Analysis Date:	2/1/2018	SeqNo:	799393		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	248	10.0						250.0	0.803	30	

Client Name: **FB**
 Logged by: **Brianna Barnes**

Work Order Number: **1801408**
 Date Received: **1/30/2018 12:05:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☐ No ☒ NA ☐

Sample received at appropriate temperature

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 ☐
 12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 14. Does paperwork match bottle labels? Yes ☒ No ☐
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 16. Is it clear what analyses were requested? Yes ☒ No ☐
 17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

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

19. Additional remarks:

Item Information

Item #	Temp °C
Sample	7.2

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

1801408

of

SUBCONTRACTOR	Fremont

[illegible]

801389

A-251

REMARKS

Please Email Results

SAMPLE DISPOSAL

☐ Will call with instructions[illegible]

SIGNATURE

Relinquished by: 

Received by:

Relinquished by:

Received by:

COMPANY

Friedman and Bruya

TIME

845

1205

SAMPLE CHAIN OF CUSTODY

ME 01/24/18

MS/100/

1001

801389

Report To David Pollock

Company ECT

Address PO Box 153

City, State, ZIP Fox Island WA 98335

Phone Email Spencer@ecotrustus

SAMPLERS (signature)

PROJECT NAME

PO #

TURNAROUND TIME

of 100/

0676-01-02

0676-01-02

Standard Turnaround

REMARKS

INVOICE TO

☐ Standard Turnaround
☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Archive Samples

☐ Other

ANALYSES REQUESTED

TPH-HCID
TPH-Diesel
TPH-Gasoline
BTEX by 8021B
VOCs by 8260C
SVOCs by 8270D
PAHs 8270D SIM
MTCA-5 Metals
Manganese/Copper/Zinc
Sulfate
PH₃
Phthalates

Notes

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars
CS-6W	01A-J	1/26/18	1125	W	10

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

MTCA-5 Metals
Dissolved

Samples received at 2 °C

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by:

Received by:

Relinquished by:

Received by:

Received by:

Relinquished by:

Received by:

Relinquished by:

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

May 11, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on April 26, 2018 from the Glacier Recycle 0676-01-02, F&BI 804470 project. There are 28 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Kaden Reed
EMS0511R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 26, 2018 by Friedman & Bruya, Inc. from the EcoCon Glacier Recycle 0676-01-02, F&BI 804470 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
804470 -01	H5B-3
804470 -02	F6-1F
804470 -03	F6-3N
804470 -04	H7A-3F
804470 -05	H7A-6N
804470 -06	E8A-2

Samples H5B-3 and E8A-2 were sent to Fremont Analytical for EPH and VPH analyses. The report is enclosed.

An 8270D internal standard failed the acceptance criteria for samples F6-1F and due H7A-3F to matrix interferences. The data were flagged accordingly. The samples were diluted and reanalyzed.

Sample E8A-2 was reported at a dilution for the 8270D SIM analysis with elevated reporting limits. An attempt was made to analyze the sample more concentrated, but matrix interferences prevented the quantitation of the analytes.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

Date Extracted: 04/26/18

Date Analyzed: 05/04/18

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

**Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 53-144)
H5B-3	530 x	4,500	91
804470-01			
F6-1F	97 x	560	94
804470-02			
E8A-2	760 x	5,500	89
804470-06			
Method Blank	<50	<250	95
08-924 MB2			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

Date Extracted: 04/27/18

Date Analyzed: 04/27/18 and 05/01/18

**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>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u> <u>(% Recovery)</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(Limit 56-165)
H5B-3 804470-01	580 x	4,600	87
F6-1F 804470-02	64 x	600	92
F6-3N 804470-03	<50	<250	85
H7A-3F 804470-04	<50	<250	97
H7A-6N 804470-05	<50	<250	99
E8A-2 804470-06 1/10	<500	8,800	85
Method Blank 08-924 MB2	<50	<250	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

Date Extracted: 04/27/18

Date Analyzed: 04/27/18

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR pH
USING EPA METHOD 9045D**

<u>Sample ID</u> Laboratory ID	<u>pH</u>
H5B-3 804470-01	7.6
F6-1F 804470-02	7.7
F6-3N 804470-03	7.6
H7A-3F 804470-04	7.5
H7A-6N 804470-05	7.6
E8A-2 804470-06	8.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	H5B-3	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/03/18	Lab ID:	804470-01
Date Analyzed:	05/07/18	Data File:	804470-01.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	57.8
Cadmium	<1
Chromium	18.7
Lead	171 ve
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	H5B-3	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/03/18	Lab ID:	804470-01 x5
Date Analyzed:	05/08/18	Data File:	804470-01 x5.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Lead	176

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F6-1F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	804470-02
Date Analyzed:	05/01/18	Data File:	804470-02.170
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	12.3
Cadmium	<1
Chromium	21.7
Lead	27.9
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	F6-3N	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	804470-03
Date Analyzed:	05/01/18	Data File:	804470-03.171
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	2.61
Cadmium	<1
Chromium	9.91
Lead	2.87
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H7A-3F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	804470-04
Date Analyzed:	05/01/18	Data File:	804470-04.172
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	7.11
Cadmium	<1
Chromium	14.0
Lead	13.5
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	H7A-6N	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	804470-05
Date Analyzed:	05/01/18	Data File:	804470-05.173
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	5.57
Cadmium	<1
Chromium	9.02
Lead	11.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	E8A-2	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	804470-06
Date Analyzed:	05/01/18	Data File:	804470-06.174
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	12.1
Cadmium	<1
Chromium	34.9
Lead	18.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/01/18	Lab ID:	I8-277 mb
Date Analyzed:	05/01/18	Data File:	I8-277 mb.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	Glacier Recycle 0676-01-02
Date Extracted:	05/03/18	Lab ID:	I8-283 mb
Date Analyzed:	05/07/18	Data File:	I8-283 mb.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F6-1F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-02 1/50
Date Analyzed:	04/30/18	Data File:	043008.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	118 d	31	163
Benzo(a)anthracene-d12	122 d J	24	168

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.1 J
Chrysene	0.10 J
Benzo(a)pyrene	<0.1 J
Benzo(b)fluoranthene	0.18 J
Benzo(k)fluoranthene	<0.1 J
Indeno(1,2,3-cd)pyrene	<0.1 J
Dibenz(a,h)anthracene	<0.1 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F6-1F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-02 1/100
Date Analyzed:	04/28/18	Data File:	042736.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	146 d	23	156
Benzo(a)anthracene-d12	91 d	43	159

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.2
Chrysene	<0.2
Benzo(a)pyrene	<0.2
Benzo(b)fluoranthene	<0.2
Benzo(k)fluoranthene	<0.2
Indeno(1,2,3-cd)pyrene	<0.2
Dibenz(a,h)anthracene	<0.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F6-3N	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-03 1/5
Date Analyzed:	04/27/18	Data File:	042724.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	23	156
Benzo(a)anthracene-d12	97	43	159

Compounds:	Concentration mg/kg (ppm)
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H7A-3F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-04 1/5
Date Analyzed:	04/30/18	Data File:	043007.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	163
Benzo(a)anthracene-d12	114	24	168

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	0.013
Chrysene	0.021
Benzo(a)pyrene	0.011 J
Benzo(b)fluoranthene	0.026 J
Benzo(k)fluoranthene	<0.01 J
Indeno(1,2,3-cd)pyrene	<0.01 J
Dibenz(a,h)anthracene	<0.01 J

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H7A-3F	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-04 1/50
Date Analyzed:	04/28/18	Data File:	042731.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	112 d	23	156
Benzo(a)anthracene-d12	100 d	43	159

Compounds:	Concentration mg/kg (ppm)
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	H7A-6N	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-05 1/5
Date Analyzed:	04/27/18	Data File:	042725.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	23	156
Benzo(a)anthracene-d12	98	43	159

Compounds:	Concentration mg/kg (ppm)
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E8A-2	Client:	EcoCon
Date Received:	04/26/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	804470-06 1/1000
Date Analyzed:	04/28/18	Data File:	042737.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	405 d	23	156
Benzo(a)anthracene-d12	73 d	43	159

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<2
Chrysene	<2
Benzo(a)pyrene	<2
Benzo(b)fluoranthene	<2
Benzo(k)fluoranthene	<2
Indeno(1,2,3-cd)pyrene	<2
Dibenz(a,h)anthracene	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	Glacier Recycle 0676-01-02
Date Extracted:	04/27/18	Lab ID:	08-923 mb2 1/5
Date Analyzed:	04/27/18	Data File:	042718.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	23	156
Benzo(a)anthracene-d12	115	43	159

Compounds:	Concentration mg/kg (ppm)
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

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

Laboratory Code: 804471-02 (Matrix Spike) Silica Gel

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	29,000 b	0 b	0 b	64-133	nm

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

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

Laboratory Code: 804471-02 (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	13,000	158 b	54 b	64-133	98 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	82	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL
SAMPLES FOR pH BY METHOD 9045D**

Laboratory Code: 804470-06 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	8.1	8.1	0	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 804415-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.64	107	107	75-125	0
Cadmium	mg/kg (ppm)	10	<1	104	103	75-125	1
Chromium	mg/kg (ppm)	50	18.9	89	93	75-125	4
Lead	mg/kg (ppm)	50	2.09	97	99	75-125	2
Mercury	mg/kg (ppm)	5	<1	100	103	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Cadmium	mg/kg (ppm)	10	91	80-120
Chromium	mg/kg (ppm)	50	98	80-120
Lead	mg/kg (ppm)	50	94	80-120
Mercury	mg/kg (ppm)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 804470-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	38.1	0 b	0 b	75-125	0 b
Cadmium	mg/kg (ppm)	10	<5	91	85	75-125	7
Chromium	mg/kg (ppm)	50	13.5	67 b	59 b	75-125	13 b
Lead	mg/kg (ppm)	50	122	23 b	2 b	75-125	168 b
Mercury	mg/kg (ppm)	5	<5	101	87	75-125	15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	98	80-120
Cadmium	mg/kg (ppm)	10	96	80-120
Chromium	mg/kg (ppm)	50	91	80-120
Lead	mg/kg (ppm)	50	98	80-120
Mercury	mg/kg (ppm)	5	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/11/18

Date Received: 04/26/18

Project: Glacier Recycle 0676-01-02, F&BI 804470

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

Laboratory Code: 804471-05 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	96	50-150
Chrysene	mg/kg (ppm)	0.17	<0.01	88	50-150
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	95	50-150
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	91	50-150
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	50-150
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	96	50-150
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	103	50-150

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.17	94	97	70-130	3
Chrysene	mg/kg (ppm)	0.17	91	93	70-130	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	91	94	70-130	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	92	93	66-132	1
Benzo(a)pyrene	mg/kg (ppm)	0.17	88	90	45-114	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	94	100	61-141	6
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	99	106	62-136	7

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.



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

RE: 804470
Work Order Number: 1805031

May 09, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 5/2/2018 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

Sample Moisture (Percent Moisture)

Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 804470
Work Order: 1805031

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1805031-001	H5B-3	04/25/2018 9:40 AM	05/02/2018 2:07 PM
1805031-002	E8A-2	04/25/2018 11:35 AM	05/02/2018 2:07 PM

CLIENT: Friedman & Bruya**Project:** 804470

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1805031
Date Reported: 5/9/2018

Client: Friedman & Bruya

Collection Date: 4/25/2018 9:40:00 AM

Project: 804470

Lab ID: 1805031-001

Matrix:

Client Sample ID: H5B-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 20521

Analyst: SB

Aliphatic Hydrocarbon (C8-C10)	ND	24.8	*	mg/Kg-dry	1	5/8/2018 6:09:00 AM
Aliphatic Hydrocarbon (C10-C12)	ND	12.4		mg/Kg-dry	1	5/8/2018 6:09:00 AM
Aliphatic Hydrocarbon (C12-C16)	ND	12.4		mg/Kg-dry	1	5/8/2018 6:09:00 AM
Aliphatic Hydrocarbon (C16-C21)	56.2	12.4		mg/Kg-dry	1	5/8/2018 6:09:00 AM
Aliphatic Hydrocarbon (C21-C34)	1,000	12.4		mg/Kg-dry	1	5/8/2018 6:09:00 AM
Aromatic Hydrocarbon (C8-C10)	ND	12.4		mg/Kg-dry	1	5/5/2018 12:59:00 PM
Aromatic Hydrocarbon (C10-C12)	ND	12.4		mg/Kg-dry	1	5/5/2018 12:59:00 PM
Aromatic Hydrocarbon (C12-C16)	ND	12.4		mg/Kg-dry	1	5/5/2018 12:59:00 PM
Aromatic Hydrocarbon (C16-C21)	33.7	12.4		mg/Kg-dry	1	5/5/2018 12:59:00 PM
Aromatic Hydrocarbon (C21-C34)	484	12.4		mg/Kg-dry	1	5/5/2018 12:59:00 PM
Surr: 1-Chlorooctadecane	128	60 - 140		%Rec	1	5/8/2018 6:09:00 AM
Surr: o-Terphenyl	76.7	60 - 140		%Rec	1	5/5/2018 12:59:00 PM

NOTES:

* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 20600

Analyst: MW

Aliphatic Hydrocarbon (C5-C6)	3.98	2.74		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aliphatic Hydrocarbon (C6-C8)	ND	3.92		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aliphatic Hydrocarbon (C8-C10)	2.69	2.20		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aliphatic Hydrocarbon (C10-C12)	9.38	2.35		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aromatic Hydrocarbon (C8-C10)	8.81	4.71		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aromatic Hydrocarbon (C10-C12)	30.1	0.941		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Aromatic Hydrocarbon (C12-C13)	ND	11.0	Q*	mg/Kg-dry	1	5/4/2018 10:39:41 PM
Benzene	ND	0.941		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Toluene	ND	1.10		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Ethylbenzene	ND	1.10		mg/Kg-dry	1	5/4/2018 10:39:41 PM
m,p-Xylene	ND	2.04		mg/Kg-dry	1	5/4/2018 10:39:41 PM
o-Xylene	ND	0.941		mg/Kg-dry	1	5/4/2018 10:39:41 PM
Naphthalene	ND	0.784	Q	mg/Kg-dry	1	5/4/2018 10:39:41 PM
Methyl tert-butyl ether (MTBE)	ND	0.784	Q	mg/Kg-dry	1	5/4/2018 10:39:41 PM
Surr: 1,4-Difluorobenzene	88.4	65 - 140		%Rec	1	5/4/2018 10:39:41 PM
Surr: Bromofluorobenzene	90.3	65 - 140		%Rec	1	5/4/2018 10:39:41 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

* - Flagged value is not within established control limits.



Client: Friedman & Bruya

Collection Date: 4/25/2018 9:40:00 AM

Project: 804470

Lab ID: 1805031-001

Matrix:

Client Sample ID: H5B-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Sample Moisture (Percent Moisture)

Batch ID: R43240 Analyst: NG

Percent Moisture	29.0	0.500		wt%	1	5/3/2018 9:56:15 AM



Analytical Report

Work Order: 1805031
Date Reported: 5/9/2018

Client: Friedman & Bruya

Collection Date: 4/25/2018 11:35:00 AM

Project: 804470

Lab ID: 1805031-002

Matrix:

Client Sample ID: E8A-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 20521

Analyst: SB

Aliphatic Hydrocarbon (C8-C10)	ND	22.8	*	mg/Kg-dry	1	5/8/2018 6:52:00 AM
Aliphatic Hydrocarbon (C10-C12)	ND	11.4		mg/Kg-dry	1	5/8/2018 6:52:00 AM
Aliphatic Hydrocarbon (C12-C16)	ND	11.4		mg/Kg-dry	1	5/8/2018 6:52:00 AM
Aliphatic Hydrocarbon (C16-C21)	25.6	11.4		mg/Kg-dry	1	5/8/2018 6:52:00 AM
Aliphatic Hydrocarbon (C21-C34)	1,130	11.4		mg/Kg-dry	1	5/8/2018 6:52:00 AM
Aromatic Hydrocarbon (C8-C10)	ND	11.4		mg/Kg-dry	1	5/5/2018 1:43:00 PM
Aromatic Hydrocarbon (C10-C12)	ND	11.4		mg/Kg-dry	1	5/5/2018 1:43:00 PM
Aromatic Hydrocarbon (C12-C16)	ND	11.4		mg/Kg-dry	1	5/5/2018 1:43:00 PM
Aromatic Hydrocarbon (C16-C21)	14.4	11.4		mg/Kg-dry	1	5/5/2018 1:43:00 PM
Aromatic Hydrocarbon (C21-C34)	980	11.4		mg/Kg-dry	1	5/5/2018 1:43:00 PM
Surr: 1-Chlorooctadecane	113	60 - 140		%Rec	1	5/8/2018 6:52:00 AM
Surr: o-Terphenyl	74.1	60 - 140		%Rec	1	5/5/2018 1:43:00 PM

NOTES:

* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 20600

Analyst: MW

Aliphatic Hydrocarbon (C5-C6)	ND	2.43		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aliphatic Hydrocarbon (C6-C8)	ND	3.48		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aliphatic Hydrocarbon (C8-C10)	ND	1.95		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aliphatic Hydrocarbon (C10-C12)	ND	2.09		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aromatic Hydrocarbon (C8-C10)	ND	4.17		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aromatic Hydrocarbon (C10-C12)	5.86	0.835		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Aromatic Hydrocarbon (C12-C13)	ND	9.74	Q*	mg/Kg-dry	1	5/4/2018 9:58:57 PM
Benzene	ND	0.835		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Toluene	ND	0.974		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Ethylbenzene	ND	0.974		mg/Kg-dry	1	5/4/2018 9:58:57 PM
m,p-Xylene	ND	1.81		mg/Kg-dry	1	5/4/2018 9:58:57 PM
o-Xylene	ND	0.835		mg/Kg-dry	1	5/4/2018 9:58:57 PM
Naphthalene	ND	0.696	Q	mg/Kg-dry	1	5/4/2018 9:58:57 PM
Methyl tert-butyl ether (MTBE)	ND	0.696	Q	mg/Kg-dry	1	5/4/2018 9:58:57 PM
Surr: 1,4-Difluorobenzene	86.6	65 - 140		%Rec	1	5/4/2018 9:58:57 PM
Surr: Bromofluorobenzene	83.6	65 - 140		%Rec	1	5/4/2018 9:58:57 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

* - Flagged value is not within established control limits.



Analytical Report

Work Order: 1805031
Date Reported: 5/9/2018

Client: Friedman & Bruya

Collection Date: 4/25/2018 11:35:00 AM

Project: 804470

Lab ID: 1805031-002

Matrix:

Client Sample ID: E8A-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Sample Moisture (Percent Moisture)

Batch ID: R43240 Analyst: NG

Percent Moisture	12.6	0.500		wt%	1	5/3/2018 9:56:15 AM

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID	MB-20521	SampType: MBLK		Units: mg/Kg		Prep Date: 4/26/2018		RunNo: 43300			
Client ID:	MBLKS	Batch ID: 20521				Analysis Date: 5/5/2018		SeqNo: 837053			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aromatic Hydrocarbon (C8-C10)	ND	10.0									
Aromatic Hydrocarbon (C10-C12)	ND	10.0									
Aromatic Hydrocarbon (C12-C16)	ND	10.0									
Aromatic Hydrocarbon (C16-C21)	ND	10.0									
Aromatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: o-Terphenyl	87.0		100.0		87.0	60	140				

Sample ID	LCS-20521	SampType: LCS			Units: mg/Kg		Prep Date: 4/26/2018			RunNo: 43300		
Client ID:	LCSS	Batch ID: 20521			Analysis Date: 5/5/2018					SeqNo: 837052		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Aromatic Hydrocarbon (C8-C10)	228	10.0	250.0	0	91.1	70	130				
Aromatic Hydrocarbon (C10-C12)	218	10.0	250.0	0	87.4	70	130				
Aromatic Hydrocarbon (C12-C16)	237	10.0	250.0	0	94.7	70	130				
Aromatic Hydrocarbon (C16-C21)	254	10.0	250.0	0	102	70	130				
Aromatic Hydrocarbon (C21-C34)	260	10.0	250.0	0	104	70	130				
Surr: o-Terphenyl	97.7		100.0		97.7	60	140				

Sample ID	1804401-001ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	4/26/2018	RunNo:	43300		
Client ID:	BATCH	Batch ID:	20521	Analysis Date:	5/5/2018	SeqNo:	837051				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aromatic Hydrocarbon (C8-C10)	19.1	14.6						14.02	30.5	30	
Aromatic Hydrocarbon (C10-C12)	57.5	14.6						70.69	20.7	30	
Aromatic Hydrocarbon (C12-C16)	413	14.6						502.1	19.4	30	
Aromatic Hydrocarbon (C16-C21)	656	14.6						771.8	16.3	30	
Aromatic Hydrocarbon (C21-C34)	62.5	14.6						65.58	4.73	30	
Surr: o-Terphenyl	103		146.3		70.6	60	140		0		

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID 1804401-001AMS	SampType: MS	Units: mg/Kg-dry		Prep Date: 4/26/2018	RunNo: 43300						
Client ID: BATCH	Batch ID: 20521			Analysis Date: 5/5/2018	SeqNo: 837054						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	287	14.5	363.5	14.02	75.2	70	130				
Aromatic Hydrocarbon (C10-C12)	377	14.5	363.5	70.69	84.2	70	130				
Aromatic Hydrocarbon (C12-C16)	826	14.5	363.5	502.1	89.0	70	130				
Aromatic Hydrocarbon (C16-C21)	984	14.5	363.5	771.8	58.3	70	130				S
Aromatic Hydrocarbon (C21-C34)	553	14.5	363.5	65.58	134	70	130				S
Surr: o-Terphenyl	127		145.4		87.0	60	140				

NOTES:

S - Outlying spike recovery(ies) observed.

Sample ID 1804401-001AMSD	SampType: MSD	Units: mg/Kg-dry		Prep Date: 4/26/2018	RunNo: 43300						
Client ID: BATCH	Batch ID: 20521			Analysis Date: 5/5/2018	SeqNo: 837055						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	288	14.8	371.0	14.02	73.8	70	130	287.3	0.194	30	
Aromatic Hydrocarbon (C10-C12)	434	14.8	371.0	70.69	97.9	70	130	376.7	14.2	30	
Aromatic Hydrocarbon (C12-C16)	1,020	14.8	371.0	502.1	139	70	130	825.7	20.7	30	S
Aromatic Hydrocarbon (C16-C21)	1,170	14.8	371.0	771.8	108	70	130	983.6	17.6	30	
Aromatic Hydrocarbon (C21-C34)	565	14.8	371.0	65.58	135	70	130	553.2	2.13	30	S
Surr: o-Terphenyl	129		148.4		86.8	60	140		0		

NOTES:

S - Outlying spike recovery(ies) observed.

Sample ID MB-20521	SampType: MBLK	Units: mg/Kg		Prep Date: 4/26/2018	RunNo: 43300						
Client ID: MBLKS	Batch ID: 20521			Analysis Date: 5/8/2018	SeqNo: 837412						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	20.0									*
Aliphatic Hydrocarbon (C10-C12)	ND	10.0									
Aliphatic Hydrocarbon (C12-C16)	ND	10.0									
Aliphatic Hydrocarbon (C16-C21)	ND	10.0									
Aliphatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: 1-Chlorooctadecane	127		100.0		127	60	140				

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID	MB-20521	SampType:	MBLK	Units:	mg/Kg	Prep Date:	4/26/2018	RunNo:	43300		
Client ID:	MBLKS	Batch ID:	20521			Analysis Date:	5/8/2018	SeqNo:	837412		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

* - Flagged value is not within established control limits.

Sample ID	LCS-20521	SampType: LCS		Units: mg/Kg		Prep Date: 4/26/2018		RunNo: 43300			
Client ID:	LCSS	Batch ID: 20521				Analysis Date: 5/8/2018		SeqNo: 837411			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	278	20.0	500.0	0	55.6	70	130				S
Aliphatic Hydrocarbon (C10-C12)	221	10.0	250.0	0	88.4	70	130				
Aliphatic Hydrocarbon (C12-C16)	281	10.0	250.0	0	113	70	130				
Aliphatic Hydrocarbon (C16-C21)	280	10.0	250.0	0	112	70	130				
Aliphatic Hydrocarbon (C21-C34)	276	10.0	250.0	0	110	70	130				
Surr: 1-Chlorooctadecane	121		100.0		121	60	140				

NOTES:

S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID	1804401-001ADUP	SampType:	DUP			Units:	mg/Kg-dry			Prep Date:	4/26/2018			RunNo:	43300		
Client ID:	BATCH	Batch ID:	20521							Analysis Date:	5/8/2018			SeqNo:	837410		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual				
Aliphatic Hydrocarbon (C8-C10)		124	29.3						124.7		0.705	30	*				
Aliphatic Hydrocarbon (C10-C12)		1,190	14.6						1,252		4.95	30					
Aliphatic Hydrocarbon (C12-C16)		4,230	14.6						4,204		0.672	30	E				
Aliphatic Hydrocarbon (C16-C21)		2,640	14.6						2,630		0.500	30	E				
Aliphatic Hydrocarbon (C21-C34)		420	14.6						403.5		4.04	30					
Surr: 1-Chlorooctadecane		159		146.3		108	60	140			0						

NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.

* - Flagged value is not within established control limits.

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID	1804401-001AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	4/26/2018	RunNo:	43300		
Client ID:	BATCH	Batch ID:	20521	Analysis Date:				5/8/2018	SeqNo:	837413	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	389	29.1	727.1	124.7	36.3	70	130				S
Aliphatic Hydrocarbon (C10-C12)	1,160	14.5	363.5	1,252	-26.2	70	130				S
Aliphatic Hydrocarbon (C12-C16)	3,580	14.5	363.5	4,204	-171	70	130				SE
Aliphatic Hydrocarbon (C16-C21)	2,390	14.5	363.5	2,630	-65.4	70	130				SE
Aliphatic Hydrocarbon (C21-C34)	623	14.5	363.5	403.5	60.3	70	130				S
Surr: 1-Chlorooctadecane	148		145.4		102	60	140				

NOTES:

SE - Analyte concentration was too high for accurate spike recovery(ies).

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID	1804401-001AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	4/26/2018	RunNo:	43300		
Client ID:	BATCH	Batch ID:	20521	Analysis Date:				5/8/2018	SeqNo:	837414	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	421	29.7	742.1	124.7	39.9	70	130	388.9	7.92	30	S
Aliphatic Hydrocarbon (C10-C12)	1,350	14.8	371.0	1,252	25.7	70	130	1,157	15.2	30	S
Aliphatic Hydrocarbon (C12-C16)	4,340	14.8	371.0	4,204	36.9	70	130	3,584	19.1	30	SE
Aliphatic Hydrocarbon (C16-C21)	2,940	14.8	371.0	2,630	84.0	70	130	2,392	20.6	30	E
Aliphatic Hydrocarbon (C21-C34)	755	14.8	371.0	403.5	94.8	70	130	622.6	19.2	30	
Surr: 1-Chlorooctadecane	157		148.4		106	60	140		0		

NOTES:

SE - Analyte concentration was too high for accurate spike recovery(ies).

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID 1805039-002ADUP		SampType: DUP			Units: wt%		Prep Date: 5/3/2018		RunNo: 43240		
Client ID: BATCH		Batch ID: R43240			Analysis Date: 5/3/2018				SeqNo: 835919		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	19.1	0.500						21.60	12.3	20	

Sample ID	1805039-014ADUP	SampType: DUP			Units: wt%		Prep Date: 5/3/2018			RunNo: 43240		
Client ID:	BATCH	Batch ID: R43240			Analysis Date: 5/3/2018				SeqNo: 835926			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Percent Moisture	12.0	0.500						15.58	26.1	20	R	

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID	LCS-20600	SampType: LCS		Units: mg/Kg		Prep Date: 5/4/2018			RunNo: 43299		
Client ID:	LCSS	Batch ID: 20600		Analysis Date: 5/4/2018					SeqNo: 837010		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	34.1	1.75	30.00	0	114	70	130				
Aliphatic Hydrocarbon (C6-C8)	12.2	2.50	10.00	0	122	70	130				
Aliphatic Hydrocarbon (C8-C10)	11.0	1.40	10.00	0	110	70	130				
Aliphatic Hydrocarbon (C10-C12)	10.2	1.50	10.00	0	102	70	130				
Aromatic Hydrocarbon (C8-C10)	45.2	3.00	40.00	0	113	70	130				
Aromatic Hydrocarbon (C10-C12)	11.2	0.600	10.00	0	112	70	130				
Aromatic Hydrocarbon (C12-C13)	ND	7.00	10.00	0	0	70	130				S
Benzene	11.0	0.600	10.00	0	110	70	130				
Toluene	10.9	0.700	10.00	0	109	70	130				
Ethylbenzene	11.1	0.700	10.00	0	111	70	130				
m,p-Xylene	22.1	1.30	20.00	0	111	70	130				
o-Xylene	10.7	0.600	10.00	0	107	70	130				
Naphthalene	8.66	0.500	10.00	0	86.6	70	130				
Methyl tert-butyl ether (MTBE)	8.78	0.500	10.00	0	87.8	70	130				
Surr: 1,4-Difluorobenzene	2.39		2.500		95.4	65	140				
Surr: Bromofluorobenzene	2.23		2.500		89.1	65	140				

NOTES:

S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID	MB-20600	SampType:	MBLK		Units:	mg/Kg		Prep Date:	5/4/2018		RunNo:	43299		
Client ID:	MBLKS	Batch ID:	20600		Analysis Date:					5/4/2018		SeqNo:	837011	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual	
Aliphatic Hydrocarbon (C5-C6)		ND	1.75		0	0								
Aliphatic Hydrocarbon (C6-C8)		ND	2.50		0	0								
Aliphatic Hydrocarbon (C8-C10)		ND	1.40		0	0								
Aliphatic Hydrocarbon (C10-C12)		ND	1.50		0	0								
Aromatic Hydrocarbon (C8-C10)		ND	3.00		0	0								
Aromatic Hydrocarbon (C10-C12)		ND	0.600		0	0								
Aromatic Hydrocarbon (C12-C13)		ND	7.00		0	0							Q*	
Benzene		ND	0.600		0	0								

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID	MB-20600	SampType:	MBLK		Units:	mg/Kg		Prep Date:	5/4/2018		RunNo:	43299	
Client ID:	MBLKS	Batch ID:	20600					Analysis Date:	5/4/2018		SeqNo:	837011	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Toluene		ND	0.700		0	0							
Ethylbenzene		ND	0.700		0	0							
m,p-Xylene		ND	1.30		0	0							
o-Xylene		ND	0.600		0	0							
Naphthalene		ND	0.500		0	0							Q
Methyl tert-butyl ether (MTBE)		ND	0.500		0	0							Q
Surr: 1,4-Difluorobenzene		2.10		2.500		84.1	65	140					
Surr: Bromofluorobenzene		2.11		2.500		84.3	65	140					

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

* - Flagged value is not within established control limits.

Sample ID	1805031-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	5/4/2018	RunNo:	43299		
Client ID:	H5B-3	Batch ID:	20600	Analysis Date:				5/4/2018	SeqNo:	837004	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	3.59	2.74		0	0			3.980	10.2	25	
Aliphatic Hydrocarbon (C6-C8)	ND	3.92		0	0			0		25	
Aliphatic Hydrocarbon (C8-C10)	3.63	2.20		0	0			2.694	29.5	25	
Aliphatic Hydrocarbon (C10-C12)	8.38	2.35		0	0			9.375	11.2	25	
Aromatic Hydrocarbon (C8-C10)	8.94	4.71		0	0			8.805	1.51	25	
Aromatic Hydrocarbon (C10-C12)	35.2	0.941		0	0			30.12	15.5	25	
Aromatic Hydrocarbon (C12-C13)	ND	11.0		0	0			0		25	Q*
Benzene	ND	0.941		0	0			0		25	
Toluene	ND	1.10		0	0			0		25	
Ethylbenzene	ND	1.10		0	0			0		25	
m,p-Xylene	ND	2.04		0	0			0		25	
o-Xylene	ND	0.941		0	0			0		25	
Naphthalene	ND	0.784		0	0			0		25	Q
Methyl tert-butyl ether (MTBE)	ND	0.784		0	0			0		25	Q
Surr: 1,4-Difluorobenzene	3.49		3.921		88.9	65	140		0		

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID	1805031-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	5/4/2018	RunNo:	43299		
Client ID:	H5B-3	Batch ID:	20600			Analysis Date:	5/4/2018	SeqNo:	837004		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene	3.42		3.921		87.2	65	140		0		

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

* - Flagged value is not within established control limits.

Sample ID	1805031-002BMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	5/4/2018	RunNo:	43299		
Client ID:	E8A-2	Batch ID:	20600	Analysis Date:				5/5/2018	SeqNo:	837006	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	45.0	2.43	41.74	0	108	70	130				
Aliphatic Hydrocarbon (C6-C8)	12.9	3.48	13.91	1.173	84.4	70	130				
Aliphatic Hydrocarbon (C8-C10)	16.0	1.95	13.91	0.8577	109	70	130				
Aliphatic Hydrocarbon (C10-C12)	26.8	2.09	13.91	1.700	180	70	130				S
Aromatic Hydrocarbon (C8-C10)	56.1	4.17	55.65	0	101	70	130				
Aromatic Hydrocarbon (C10-C12)	100	0.835	13.91	5.859	677	70	130				S
Aromatic Hydrocarbon (C12-C13)	ND	9.74	13.91	0	0	70	130				S
Benzene	15.0	0.835	13.91	0	108	70	130				
Toluene	14.8	0.974	13.91	0	106	70	130				
Ethylbenzene	14.4	0.974	13.91	0	103	70	130				
m,p-Xylene	28.2	1.81	27.83	0	101	70	130				
o-Xylene	13.4	0.835	13.91	0	96.4	70	130				
Naphthalene	7.55	0.696	13.91	0	54.3	70	130				S
Methyl tert-butyl ether (MTBE)	10.7	0.696	13.91	0	77.1	70	130				
Surr: 1,4-Difluorobenzene	3.53		3.478		101	65	140				
Surr: Bromofluorobenzene	2.79		3.478		80.1	65	140				

NOTES:

S - Outlying spike recovery(ies) observed.

Work Order: 1805031
CLIENT: Friedman & Bruya
Project: 804470

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID	1805031-002BMSD	SampType: MSD	Units: mg/Kg-dry			Prep Date: 5/4/2018			RunNo: 43299		
Client ID:	E8A-2	Batch ID:	20600				Analysis Date: 5/5/2018			SeqNo: 837007	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	46.1	2.43	41.74	0	111	70	130	44.98	2.54	30	
Aliphatic Hydrocarbon (C6-C8)	12.9	3.48	13.91	1.173	84.5	70	130	12.91	0.115	30	
Aliphatic Hydrocarbon (C8-C10)	16.1	1.95	13.91	0.8577	110	70	130	15.98	0.938	30	
Aliphatic Hydrocarbon (C10-C12)	24.9	2.09	13.91	1.700	167	70	130	26.80	7.48	30	S
Aromatic Hydrocarbon (C8-C10)	57.4	4.17	55.65	0	103	70	130	56.07	2.41	30	
Aromatic Hydrocarbon (C10-C12)	53.1	0.835	13.91	5.859	340	70	130	100.1	61.3	30	RS
Aromatic Hydrocarbon (C12-C13)	ND	9.74	13.91	0	0	70	130	0		30	S
Benzene	15.1	0.835	13.91	0	108	70	130	15.02	0.350	30	
Toluene	14.8	0.974	13.91	0	107	70	130	14.77	0.522	30	
Ethylbenzene	14.6	0.974	13.91	0	105	70	130	14.36	1.64	30	
m,p-Xylene	28.6	1.81	27.83	0	103	70	130	28.22	1.37	30	
o-Xylene	13.5	0.835	13.91	0	97.3	70	130	13.41	0.922	30	
Naphthalene	8.03	0.696	13.91	0	57.7	70	130	7.549	6.13	30	S
Methyl tert-butyl ether (MTBE)	10.5	0.696	13.91	0	75.6	70	130	10.73	1.93	30	
Surr: 1,4-Difluorobenzene	3.45		3.478		99.1	65	140		0		
Surr: Bromofluorobenzene	3.24		3.478		93.1	65	140		0		

NOTES:

S - Outlying spike recovery(ies) observed.
 R - High RPD observed.



Sample Log-In Check List

Client Name: **FB**
Logged by: **Clare Griggs**

Work Order Number: **1805031**
Date Received: **5/2/2018 2:07:00 PM**

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 $>0^{\circ}\text{C}$ 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 ☐
12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
14. Does paperwork match bottle labels? Yes ☒ No ☐
15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
16. Is it clear what analyses were requested? Yes ☒ No ☐
17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

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

19. Additional remarks:

Item Information

Item #	Temp $^{\circ}\text{C}$
Cooler	6.5
Sample	4.3

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

1805031

1

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

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

ANALYSES REQUESTED

[illegible]

Fax (206) 283-5044

Relinquished by

Edwards Acañar

FAI

5/2/18

12:04

Received by:

SAMPLE CHAIN OF CUSTODY

804470

Report To David Tallia + Kaler Reed

Company ECI

Address 70 BOX 153

City, State, ZIP Fox Island WA 98333

Phone 206-888-0800 Email Kaler@ecicon.us

SAMPLERS (signature)

PROJECT NAME

Glacier Recycle

PO #

0676-01-02

REMARKS

Run EPH/UPH on to highest TPH samples 1000

INVOICE TO

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH
 Rush charges authorized by: _____
 SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	Carcinogenic PAHs 8270D SIM	EPH/UPH	MTCAS met	PH	D-1/SG	Notes
H5B-3	01A-B	4/25/18	0940	S	3	X	X						X	X	X	X	(X) - per DP
E6-1E	02		1010			X	X						X	X	X	X	5/2/18
E6-3N	03		1015			X	X						X	X	X	X	ME
H7A-3F	04		1050			X	X						X	X	X	X	
H7A-6N	05		1255			X	X						X	X	X	X	
E8A-2	06		1135			X	X						X	X	X	X	
																	Samples received at 4 °C

SIGNATURE

Relinquished by:

[Signature]

PRINT NAME

Kaler Reed

COMPANY

ECI

DATE

4/26/18 1020

TIME

1020 PM

Received by:

[Signature]

Wes Harris

Federal

Relinquished by:

[Signature]

Nhan Phan

FBI

4/26/18 1200

ME

4/26/18

0822 / 052

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

February 16, 2018

David Polivka, Project Manager
EcoCon, Inc.
15 S. Oregon Ave, Suite 110
Tacoma, WA 98409

Dear Mr Polivka:

Included are the results from the testing of material submitted on February 6, 2018 from the Glacier Recycle 0676-01-02, F&BI 802080 project. There are 28 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Steven Spencer
EMS0216R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 6, 2018 by Friedman & Bruya, Inc. from the EcoCon Glacier Recycle 0676-01-02, F&BI 802080 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
802080 -01	MW1
802080 -02	MW2
802080 -03	MW3

The samples were sent to Fremont Analytical for TDS, sulfate, and sulfide analyses. The report is enclosed.

The dissolved metals samples were filtered at Friedman and Bruya on February 08, 2018 at 15:26. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

Date Extracted: 02/08/18

Date Analyzed: 02/09/18

**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 <u>(% Recovery)</u> (Limit 51-134)
MW1 802080-01	<100	95
MW2 802080-02	<100	94
MW3 802080-03	<100	94
Method Blank 08-233 MB	<100	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

Date Extracted: 02/07/18

Date Analyzed: 02/07/18

**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 51-134)
MW1 802080-01	<50	<250	98
MW2 802080-02	<50	<250	97
MW3 802080-03	<50	<250	104
Method Blank 08-293 MB	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

Date Extracted: NA

Date Analyzed: 02/07/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
MW1 802080-01	6.1	02/07/18	17:51
MW2 802080-03	6.2	02/07/18	17:52
MW3 802080-03	6.2	02/07/18	17:53

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW1 f	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-01
Date Analyzed:	02/12/18	Data File:	802080-01.091
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	17.4
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW2 f	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-02
Date Analyzed:	02/12/18	Data File:	802080-02.094
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	18.1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW3 f	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-03
Date Analyzed:	02/12/18	Data File:	802080-03.095
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	20.3
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	Method Blank f	Client:	EcoCon
Date Received:	NA	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	I8-099 mb
Date Analyzed:	02/12/18	Data File:	I8-099 mb.089
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW1	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-01
Date Analyzed:	02/12/18	Data File:	802080-01.062
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	10.6
Copper	<5
Lead	<1
Manganese	40.6
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW2	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-02
Date Analyzed:	02/12/18	Data File:	802080-02.063
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	14.1
Copper	<5
Lead	<1
Manganese	40.0
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW3	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	802080-03
Date Analyzed:	02/12/18	Data File:	802080-03.064
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	10.1
Copper	<5
Lead	<1
Manganese	39.5
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/12/18	Lab ID:	I8-097 mb
Date Analyzed:	02/12/18	Data File:	I8-097 mb.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW1	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/18	Lab ID:	802080-01
Date Analyzed:	02/08/18	Data File:	020805.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	100	25	165

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW2	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/18	Lab ID:	802080-02
Date Analyzed:	02/08/18	Data File:	020806.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	31	160
Benzo(a)anthracene-d12	86	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	0.033
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW3	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/18	Lab ID:	802080-03
Date Analyzed:	02/08/18	Data File:	020807.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	100	31	160
Benzo(a)anthracene-d12	104	25	165

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/18	Lab ID:	08-292 mb2
Date Analyzed:	02/08/18	Data File:	020804.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	97	25	165

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	MW1	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/17	Lab ID:	802080-01
Date Analyzed:	02/08/18	Data File:	020809.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	32	162
Phenol-d6	45	10	170
Nitrobenzene-d5	116	50	150
2-Fluorobiphenyl	111	43	158
2,4,6-Tribromophenol	97	43	146
Terphenyl-d14	111	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	MW2	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/17	Lab ID:	802080-02
Date Analyzed:	02/08/18	Data File:	020810.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	32	162
Phenol-d6	42	10	170
Nitrobenzene-d5	115	50	150
2-Fluorobiphenyl	109	43	158
2,4,6-Tribromophenol	97	43	146
Terphenyl-d14	113	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	MW3	Client:	EcoCon
Date Received:	02/06/18	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/17	Lab ID:	802080-03
Date Analyzed:	02/08/18	Data File:	020811.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72	32	162
Phenol-d6	44	10	170
Nitrobenzene-d5	116	50	150
2-Fluorobiphenyl	108	43	158
2,4,6-Tribromophenol	100	43	146
Terphenyl-d14	114	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	Glacier Recycle 0676-01-02
Date Extracted:	02/07/17	Lab ID:	08-291 mb2
Date Analyzed:	02/08/18	Data File:	020807.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63	32	162
Phenol-d6	42	10	170
Nitrobenzene-d5	112	50	150
2-Fluorobiphenyl	103	43	158
2,4,6-Tribromophenol	72	43	146
Terphenyl-d14	107	39	168

Compounds:	Concentration ug/L (ppb)
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

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

Laboratory Code: 802073-01 (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: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

**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	76	80	58-134	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 802080-03 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.2	6.2	0	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

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

Laboratory Code: 802080-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	119	121	75-125	2
Cadmium	ug/L (ppb)	5	<1	107	109	75-125	2
Chromium	ug/L (ppb)	20	<1	101	107	75-125	6
Copper	ug/L (ppb)	20	<5	91	93	75-125	2
Lead	ug/L (ppb)	10	<1	89	94	75-125	5
Manganese	ug/L (ppb)	20	17.4	99	107	75-125	8
Mercury	ug/L (ppb)	5	<1	85	92	75-125	8
Zinc	ug/L (ppb)	50	<5	96	99	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	109	80-120
Cadmium	ug/L (ppb)	5	112	80-120
Chromium	ug/L (ppb)	20	114	80-120
Copper	ug/L (ppb)	20	110	80-120
Lead	ug/L (ppb)	10	103	80-120
Manganese	ug/L (ppb)	20	110	80-120
Mercury	ug/L (ppb)	5	96	80-120
Zinc	ug/L (ppb)	50	110	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 802153-08 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	99	97	75-125	2
Cadmium	ug/L (ppb)	5	<10	101	103	75-125	2
Chromium	ug/L (ppb)	20	<10	93	92	75-125	1
Copper	ug/L (ppb)	20	<50	114	118	75-125	3
Lead	ug/L (ppb)	10	<10	103	103	75-125	0
Manganese	ug/L (ppb)	20	<10	93	90	75-125	3
Mercury	ug/L (ppb)	5	<10	95	100	75-125	5
Zinc	ug/L (ppb)	50	6,220	0 b	0 b	75-125	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	101	80-120
Cadmium	ug/L (ppb)	5	104	80-120
Chromium	ug/L (ppb)	20	97	80-120
Copper	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	95	80-120
Manganese	ug/L (ppb)	20	98	80-120
Mercury	ug/L (ppb)	5	89	80-120
Zinc	ug/L (ppb)	50	101	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	88	93	67-116	6
Acenaphthylene	ug/L (ppb)	1	85	90	65-119	6
Acenaphthene	ug/L (ppb)	1	86	92	66-118	7
Fluorene	ug/L (ppb)	1	85	94	64-125	10
Phenanthrene	ug/L (ppb)	1	88	93	67-120	6
Anthracene	ug/L (ppb)	1	88	93	65-122	6
Fluoranthene	ug/L (ppb)	1	87	97	65-127	11
Pyrene	ug/L (ppb)	1	82	89	62-130	8
Benz(a)anthracene	ug/L (ppb)	1	91	99	60-118	8
Chrysene	ug/L (ppb)	1	94	100	66-125	6
Benzo(b)fluoranthene	ug/L (ppb)	1	90	99	55-135	10
Benzo(k)fluoranthene	ug/L (ppb)	1	96	100	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	90	95	58-127	5
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	90	94	36-142	4
Dibenz(a,h)anthracene	ug/L (ppb)	1	86	90	37-133	5
Benzo(g,h,i)perylene	ug/L (ppb)	1	87	93	34-135	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/16/18

Date Received: 02/06/18

Project: Glacier Recycle 0676-01-02, F&BI 802080

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dimethyl phthalate	ug/L (ppb)	10	92	98	55-116	6
Diethyl phthalate	ug/L (ppb)	10	93	98	55-116	5
Di-n-butyl phthalate	ug/L (ppb)	10	109	114	54-115	4
Benzyl butyl phthalate	ug/L (ppb)	10	108	113	53-122	5
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	10	109	114	54-122	4
Di-n-octyl phthalate	ug/L (ppb)	10	103	103	50-131	0

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.



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

RE: 802080
Work Order Number: 1802088

February 13, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 2/7/2018 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0

Sulfide by SM 4500-S2-F

Total Dissolved Solids (TDS) by SM 2540C

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 802080
Work Order: 1802088

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1802088-001	MW1	02/05/2018 2:45 PM	02/07/2018 2:28 PM
1802088-002	MW2	02/05/2018 1:40 PM	02/07/2018 2:28 PM
1802088-003	MW3	02/05/2018 12:40 PM	02/07/2018 2:28 PM

CLIENT: Friedman & Bruya**Project:** 802080

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1802088
Date Reported: 2/13/2018

Client: Friedman & Bruya

Collection Date: 2/5/2018 2:45:00 PM

Project: 802080

Lab ID: 1802088-001

Matrix: Water

Client Sample ID: MW1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Ion Chromatography by EPA Method 300.0

Batch ID: R41628 Analyst: KT

Sulfate	184	6.00	D	mg/L	20	2/8/2018 4:02:00 PM

Sulfide by SM 4500-S2-F

Batch ID: R41629 Analyst: KT

Sulfide	ND	0.500		mg/L	1	2/9/2018 7:40:00 AM

Total Dissolved Solids (TDS) by SM 2540C

Batch ID: R41659 Analyst: KT

Total Dissolved Solids	357	5.00		mg/L	1	2/12/2018 1:34:56 PM



Analytical Report

Work Order: 1802088

Date Reported: 2/13/2018

Client: Friedman & Bruya

Collection Date: 2/5/2018 1:40:00 PM

Project: 802080

Lab ID: 1802088-002

Matrix: Water

Client Sample ID: MW2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Ion Chromatography by EPA Method 300.0

Batch ID: R41628 Analyst: KT

Sulfate	185	6.00	D	mg/L	20	2/8/2018 4:25:00 PM

Sulfide by SM 4500-S2-F

Batch ID: R41629 Analyst: KT

Sulfide	ND	0.500		mg/L	1	2/9/2018 8:00:00 AM

Total Dissolved Solids (TDS) by SM 2540C

Batch ID: R41659 Analyst: KT

Total Dissolved Solids	361	5.00		mg/L	1	2/12/2018 1:38:56 PM



Analytical Report

Work Order: 1802088
Date Reported: 2/13/2018

Client: Friedman & Bruya

Collection Date: 2/5/2018 12:40:00 PM

Project: 802080

Lab ID: 1802088-003

Matrix: Water

Client Sample ID: MW3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed

Ion Chromatography by EPA Method 300.0

Batch ID: R41628 Analyst: KT

Sulfate	185	6.00	D	mg/L	20	2/8/2018 4:48:00 PM

Sulfide by SM 4500-S2-F

Batch ID: R41629 Analyst: KT

Sulfide	ND	0.500		mg/L	1	2/9/2018 8:05:00 AM

Total Dissolved Solids (TDS) by SM 2540C

Batch ID: R41659 Analyst: KT

Total Dissolved Solids	362	5.00		mg/L	1	2/12/2018 1:40:56 PM

Work Order: 1802088
CLIENT: Friedman & Bruya
Project: 802080

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	MB-R41628	SampType: MBLK			Units: mg/L		Prep Date: 2/8/2018			RunNo: 41628		
Client ID:	MBLKW	Batch ID: R41628						Analysis Date: 2/8/2018			SeqNo: 802570	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	ND	0.300									

Sample ID	LCS-R41628	SampType: LCS			Units: mg/L		Prep Date: 2/8/2018			RunNo: 41628		
Client ID:	LCSW	Batch ID: R41628			Analysis Date: 2/8/2018					SeqNo: 802571		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	3.63	0.300	3.750	0	96.9	90	110				

Sample ID	1802079-002ADUP	SampType:	DUP	Units:	mg/L	Prep Date:	2/8/2018	RunNo:	41628		
Client ID:	BATCH	Batch ID:	R41628			Analysis Date:	2/8/2018	SeqNo:	802578		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	7.79	0.300						7.812	0.282	20	

Sample ID	1802079-002AMS	SampType: MS			Units: mg/L		Prep Date: 2/8/2018			RunNo: 41628		
Client ID:	BATCH	Batch ID: R41628			Analysis Date: 2/8/2018					SeqNo: 802579		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	11.7	0.300	3.750	7.812	103	80	120				

Sample ID	1802079-002AMSD	SampType: MSD			Units: mg/L		Prep Date: 2/8/2018			RunNo: 41628		
Client ID:	BATCH	Batch ID: R41628			Analysis Date: 2/8/2018					SeqNo: 802580		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate	11.7	0.300	3.750	7.812	103	80	120	11.68	0.0941	20	

Work Order: 1802088
CLIENT: Friedman & Bruya
Project: 802080

QC SUMMARY REPORT

Sulfide by SM 4500-S2-F

Sample ID	MB-R41629	SampType:	MBLK			Units:	mg/L			Prep Date:	2/9/2018			RunNo:	41629		
Client ID:	MBLKW	Batch ID:	R41629			Analysis Date:					2/9/2018			SeqNo:	802588		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual				

Sulfide ND 0.500

Sample ID	LCS-R41629	SampType: LCS			Units: mg/L		Prep Date: 2/9/2018			RunNo: 41629		
Client ID:	LCSW	Batch ID: R41629			Analysis Date: 2/9/2018					SeqNo: 802589		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfide 2.00 0.500 2.000 0 100 65 135

Sample ID	1802088-001BDUP	SampType:	DUP	Units:	mg/L	Prep Date:	2/9/2018	RunNo:	41629		
Client ID:	MW1	Batch ID:	R41629	Analysis Date:	2/9/2018	SeqNo:	802591				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide ND 0.500 0 30

Sample ID	1802088-001BMS	SampType:	MS	Units:	mg/L	Prep Date:	2/9/2018	RunNo:	41629		
Client ID:	MW1	Batch ID:	R41629			Analysis Date:	2/9/2018	SeqNo:	802592		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide 1.80 0.500 2.000 0 90.0 65 135

Sample ID	1802088-001BMSD	SampType:	MSD	Units:	mg/L	Prep Date:	2/9/2018	RunNo:	41629		
Client ID:	MW1	Batch ID:	R41629			Analysis Date:	2/9/2018	SeqNo:	802593		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide 2.00 0.500 2.000 0 100 65 135 1.800 10.5 30

Work Order: 1802088
CLIENT: Friedman & Bruya
Project: 802080

QC SUMMARY REPORT

Total Dissolved Solids (TDS) by SM 2540C

Sample ID	MB-R41659	SampType:	MBLK			Units:	mg/L			Prep Date:	2/12/2018			RunNo:	41659		
Client ID:	MBLKW	Batch ID:	R41659			Analysis Date:					2/12/2018			SeqNo:	803027		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual				

Total Dissolved Solids	ND	5.00									

Sample ID	LCS-R41659	SampType: LCS			Units: mg/L		Prep Date: 2/12/2018			RunNo: 41659		
Client ID:	LCSW	Batch ID: R41659			Analysis Date: 2/12/2018			SeqNo: 803028				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Total Dissolved Solids	344	10.0	300.0	0	115	65	135				

Sample ID	1802088-001ADUP	SampType:	DUP	Units:	mg/L	Prep Date:	2/12/2018	RunNo:	41659		
Client ID:	MW1	Batch ID:	R41659	Analysis Date:	2/12/2018	SeqNo:	803030				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids	354	5.00						357.0	0.844	30	

Client Name: **FB**
 Logged by: **Brianna Barnes**

Work Order Number: **1802088**
 Date Received: **2/7/2018 2:28:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 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 ☐
 NaOH and Zn Acetate added to B fraction.
 12. Is there headspace in the VOA vials? Yes ☐ No ☐ NA ☒
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐
 14. Does paperwork match bottle labels? Yes ☒ No ☐
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
 16. Is it clear what analyses were requested? Yes ☒ No ☐
 17. Were all holding times able to be met? Yes ☒ No ☐

Special Handling (if applicable)

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

Person Notified: Michael Erdahl Date 2/7/2018
 By Whom: Brianna Barnes Via: ☒ eMail ☐ Phone ☐ Fax ☐ In Person
 Regarding: Sample dates and times.
 Client Instructions: Sampled on 2/5/18.

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	2.8
Sample	3.8

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

1802088

3

Company Friedman and Bruya, Inc.

City, State, ZIP Seattle, WA 98119

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

TURNAROUND TIME

☒ Standard (4 Weeks)

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

[illegible]

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

SIGNATURE

PRINT NAME _____

COMPANY

THE

TIME

Retinquired by:

Michael Erdahl

Friedman and Bruya

2/27/15

2000

Received by:

MS.A.9.2.10.1

五

010

14

Relinquished by:

8

10

44

1

Received by:

1

1802088

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

Page # 1 of 1

TURNAROUND TIME

☒ Standard (4 Weeks)

☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
	Michael Erdahl	Friedman and Bruya	2/7/18	7:50 AM.
Received by: 	Casey O'Keefe	FAI	2/7/18	1428
Relinquished by:				
Received by:				

ME 02/06/18 Bay



PO#

0676-01-02

REMARKS	INVOICE TO

Figure 1. The effect of the number of iterations on the accuracy of the proposed algorithm. The accuracy of the proposed algorithm increases with the number of iterations. The accuracy of the proposed algorithm is 100% when the number of iterations is 1000.

TURNAROUND TIME 4/4
☒ Standard Turnaround
☐ RUSH _____
 Rush charges authorized by: _____

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

[illegible]

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Reinquisted by: 	Gordon Reed	ECT	2/6/18	1250
Received by: 	Gordon Reed	ECT	2/6/18	1250
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

May 17, 2018

David Polivka, Project Manager
EcoCon, Inc.
P.O. Box 153
Fox Island, WA 98333

Dear Mr Polivka:

Included are the results from the testing of material submitted on May 7, 2018 from the 0676-01-03, F&BI 805117 project. There are 23 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Kaden Reed, Steve Spencer
EMS0517R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 7, 2018 by Friedman & Bruya, Inc. from the EcoCon 0676-01-03, F&BI 805117 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>EcoCon</u>
805117 -01	MW1
805117 -02	MW2
805117 -03	MW3

The samples were sent to Fremont Analytical for TDS, sulfate, and sulfide analyses. The report is enclosed.

The dissolved metals samples were filtered at Friedman and Bruya on May 11, 2018 at 11:14. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18
Date Received: 05/07/18
Project: 0676-01-03, F&BI 805117
Date Extracted: 05/08/18
Date Analyzed: 05/08/18

**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 <u>(% Recovery)</u> (Limit 51-134)
MW1 805117-01	<100	92
MW2 805117-02	<100	91
MW3 805117-03	<100	91
Method Blank 08-940 MB	<100	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18
Date Received: 05/07/18
Project: 0676-01-03, F&BI 805117
Date Extracted: 05/09/18
Date Analyzed: 05/09/18

**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>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
MW1	<50	<250	112
805117-01			
MW2	<50	<250	113
805117-02			
MW3	<50	<250	118
805117-03			
Method Blank	<50	<250	99
08-1029 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

Date Extracted: NA

Date Analyzed: 05/08/18

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH
USING EPA METHOD 9040C**

<u>Sample ID</u> Laboratory ID	<u>pH</u>	<u>Date Analyzed</u>	<u>Time Analyzed</u>
MW1 805117-01	6.0	05/08/18	18:03
MW2 805117-02	6.0	05/08/18	18:04
MW3 805117-03	6.1	05/08/18	18:05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW1 f	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/14/18	Lab ID:	805117-01
Date Analyzed:	05/14/18	Data File:	805117-01.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	6.85
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW2 f	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/14/18	Lab ID:	805117-02
Date Analyzed:	05/14/18	Data File:	805117-02.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	15.3
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW3 f	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/14/18	Lab ID:	805117-03
Date Analyzed:	05/14/18	Data File:	805117-03.045
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	11.9
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	EcoCon
Date Received:	NA	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/14/18	Lab ID:	I8-307 mb
Date Analyzed:	05/14/18	Data File:	I8-307 mb.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW1	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/10/18	Lab ID:	805117-01
Date Analyzed:	05/10/18	Data File:	805117-01.123
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	15.3
Copper	<5
Lead	<1
Manganese	26.9
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW2	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/10/18	Lab ID:	805117-02
Date Analyzed:	05/10/18	Data File:	805117-02.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	14.3
Copper	<5
Lead	<1
Manganese	27.4
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW3	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/10/18	Lab ID:	805117-03
Date Analyzed:	05/10/18	Data File:	805117-03.125
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.35
Cadmium	<1
Chromium	17.3
Copper	<5
Lead	<1
Manganese	70.0
Mercury	<1
Zinc	5.40

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EcoCon
Date Received:	NA	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/10/18	Lab ID:	I8-299 mb2
Date Analyzed:	05/10/18	Data File:	I8-299 mb2.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID: MW1	Client: EcoCon
Date Received: 05/07/18	Project: 0676-01-03, F&BI 805117
Date Extracted: 05/09/18	Lab ID: 805117-01 1/2
Date Analyzed: 05/09/18	Data File: 050910.D
Matrix: Water	Instrument: GCMS8
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	80	15	99
Phenol-d6	61	11	65
Nitrobenzene-d5	100	50	150
2-Fluorobiphenyl	91	50	150
2,4,6-Tribromophenol	74	50	150
Terphenyl-d14	83	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.04
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04
Dimethyl phthalate	<4
Diethyl phthalate	<4
Di-n-butyl phthalate	<4
Benzyl butyl phthalate	<4
Bis(2-ethylhexyl) phthalate	<6.4
Di-n-octyl phthalate	<4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	MW2	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/09/18	Lab ID:	805117-02 1/2
Date Analyzed:	05/09/18	Data File:	050911.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	79	15	99
Phenol-d6	60	11	65
Nitrobenzene-d5	101	50	150
2-Fluorobiphenyl	96	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	84	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.04
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04
Dimethyl phthalate	<4
Diethyl phthalate	<4
Di-n-butyl phthalate	<4
Benzyl butyl phthalate	<4
Bis(2-ethylhexyl) phthalate	<6.4
Di-n-octyl phthalate	<4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	MW3	Client:	EcoCon
Date Received:	05/07/18	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/09/18	Lab ID:	805117-03 1/2
Date Analyzed:	05/09/18	Data File:	050912.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	15	99
Phenol-d6	62	11	65
Nitrobenzene-d5	100	50	150
2-Fluorobiphenyl	93	50	150
2,4,6-Tribromophenol	79	50	150
Terphenyl-d14	82	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.04
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04
Dimethyl phthalate	<4
Diethyl phthalate	<4
Di-n-butyl phthalate	<4
Benzyl butyl phthalate	<4
Bis(2-ethylhexyl) phthalate	<6.4
Di-n-octyl phthalate	<4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EcoCon
Date Received:	Not Applicable	Project:	0676-01-03, F&BI 805117
Date Extracted:	05/09/18	Lab ID:	08-1030 mb
Date Analyzed:	05/09/18	Data File:	050909.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	63	15	99
Phenol-d6	42	11	65
Nitrobenzene-d5	98	50	150
2-Fluorobiphenyl	91	50	150
2,4,6-Tribromophenol	70	50	150
Terphenyl-d14	83	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.02
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02
Dimethyl phthalate	<2
Diethyl phthalate	<2
Di-n-butyl phthalate	<2
Benzyl butyl phthalate	<2
Bis(2-ethylhexyl) phthalate	<3.2
Di-n-octyl phthalate	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

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

Laboratory Code: 805117-01 (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	82	70-119

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

**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	116	129	63-142	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR pH BY METHOD 9040C**

Laboratory Code: 805117-03 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	6.1	6.1	0	0-20

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

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

Laboratory Code: 805117-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	111	112	75-125	1
Cadmium	ug/L (ppb)	5	<1	107	108	75-125	1
Chromium	ug/L (ppb)	20	<1	106	109	75-125	3
Copper	ug/L (ppb)	20	<5	99	103	75-125	4
Lead	ug/L (ppb)	10	<1	100	99	75-125	1
Manganese	ug/L (ppb)	20	6.85	105	108	75-125	3
Mercury	ug/L (ppb)	5	<1	97	97	75-125	0
Zinc	ug/L (ppb)	50	<5	102	101	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	104	80-120
Cadmium	ug/L (ppb)	5	103	80-120
Chromium	ug/L (ppb)	20	104	80-120
Copper	ug/L (ppb)	20	104	80-120
Lead	ug/L (ppb)	10	99	80-120
Manganese	ug/L (ppb)	20	102	80-120
Mercury	ug/L (ppb)	5	94	80-120
Zinc	ug/L (ppb)	50	102	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

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

Laboratory Code: 805068-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	15.4	90	87	75-125	3
Cadmium	ug/L (ppb)	5	<1	97	95	75-125	2
Chromium	ug/L (ppb)	20	<1	106	105	75-125	1
Copper	ug/L (ppb)	20	<5	88	87	75-125	1
Lead	ug/L (ppb)	10	<1	80	80	75-125	0
Manganese	ug/L (ppb)	20	21.6	80	84	75-125	5
Mercury	ug/L (ppb)	5	<1	85	87	75-125	2
Zinc	ug/L (ppb)	50	26.2	100	91	75-125	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	100	80-120
Chromium	ug/L (ppb)	20	107	80-120
Copper	ug/L (ppb)	20	98	80-120
Lead	ug/L (ppb)	10	93	80-120
Manganese	ug/L (ppb)	20	103	80-120
Mercury	ug/L (ppb)	5	94	80-120
Zinc	ug/L (ppb)	50	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/17/18

Date Received: 05/07/18

Project: 0676-01-03, F&BI 805117

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

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)	10	91	88	70-130	3
Acenaphthylene	ug/L (ppb)	10	96	97	70-130	1
Acenaphthene	ug/L (ppb)	10	91	92	70-130	1
Fluorene	ug/L (ppb)	10	93	93	70-130	0
Phenanthrene	ug/L (ppb)	10	93	94	70-130	1
Anthracene	ug/L (ppb)	10	97	98	70-130	1
Fluoranthene	ug/L (ppb)	10	96	99	70-130	3
Pyrene	ug/L (ppb)	10	96	93	70-130	3
Benz(a)anthracene	ug/L (ppb)	10	99	100	70-130	1
Chrysene	ug/L (ppb)	10	98	98	70-130	0
Benzo(a)pyrene	ug/L (ppb)	10	102	102	70-130	0
Benzo(b)fluoranthene	ug/L (ppb)	10	102	99	70-130	3
Benzo(k)fluoranthene	ug/L (ppb)	10	101	100	70-130	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	10	98	102	66-137	4
Dibenz(a,h)anthracene	ug/L (ppb)	10	96	99	63-142	3
Benzo(g,h,i)perylene	ug/L (ppb)	10	103	107	60-139	4
Dimethyl phthalate	ug/L (ppb)	10	101	101	70-130	0
Diethyl phthalate	ug/L (ppb)	10	99	95	67-128	4
Di-n-butyl phthalate	ug/L (ppb)	10	107	108	70-130	1
Benzyl butyl phthalate	ug/L (ppb)	10	100	103	70-130	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	10	97	98	70-130	1
Di-n-octyl phthalate	ug/L (ppb)	10	105	101	67-147	4

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.



Fremont
Analytical

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Seattle, WA 98103
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F: (206) 352-7178
info@fremontanalytical.com

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

RE: 805117
Work Order Number: 1805098

May 15, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 5/8/2018 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0
Sulfide by SM 4500-S2-F
Total Dissolved Solids (TDS) by SM 2540C

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 805117
Work Order: 1805098

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1805098-001	MW1	05/07/2018 12:25 PM	05/08/2018 11:11 AM
1805098-002	MW2	05/07/2018 11:15 AM	05/08/2018 11:11 AM
1805098-003	MW3	05/07/2018 10:15 AM	05/08/2018 11:11 AM

CLIENT: Friedman & Bruya**Project:** 805117

I. SAMPLE RECEIPT:

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

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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



Analytical Report

Work Order: 1805098

Date Reported: 5/15/2018

CLIENT: Friedman & Bruya

Project: 805117

Lab ID: 1805098-001

Client Sample ID: MW1

Collection Date: 5/7/2018 12:25:00 PM

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ion Chromatography by EPA Method 300.0</u>				Batch ID: R43463 Analyst: KT		
Sulfate	42.4	3.00	D	mg/L	10	5/11/2018 12:36:00 PM
<u>Sulfide by SM 4500-S2-F</u>				Batch ID: R43431 Analyst: KT		
Sulfide	ND	0.500		mg/L	1	5/11/2018 9:25:00 AM
<u>Total Dissolved Solids (TDS) by SM 2540C</u>				Batch ID: R43401 Analyst: KT		
Total Dissolved Solids	140	5.00		mg/L	1	5/10/2018 12:39:52 PM

Lab ID: 1805098-002

Client Sample ID: MW2

Collection Date: 5/7/2018 11:15:00 AM

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ion Chromatography by EPA Method 300.0</u>				Batch ID: R43463 Analyst: KT		
Sulfate	41.6	3.00	D	mg/L	10	5/11/2018 1:45:00 PM
<u>Sulfide by SM 4500-S2-F</u>				Batch ID: R43431 Analyst: KT		
Sulfide	ND	0.500		mg/L	1	5/11/2018 9:35:00 AM
<u>Total Dissolved Solids (TDS) by SM 2540C</u>				Batch ID: R43401 Analyst: KT		
Total Dissolved Solids	110	5.00		mg/L	1	5/10/2018 12:41:52 PM



Work Order: 1805098

Date Reported: 5/15/2018

CLIENT: Friedman & Bruya

Project: 805117

Lab ID: 1805098-003

Client Sample ID: MW3

Collection Date: 5/7/2018 10:15:00 AM

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ion Chromatography by EPA Method 300.0</u>				Batch ID: R43463		Analyst: KT
Sulfate	41.4	3.00	D	mg/L	10	5/11/2018 2:09:00 PM
<u>Sulfide by SM 4500-S2-F</u>				Batch ID: R43431		Analyst: KT
Sulfide	ND	0.500		mg/L	1	5/11/2018 9:45:00 AM
<u>Total Dissolved Solids (TDS) by SM 2540C</u>				Batch ID: R43401		Analyst: KT
Total Dissolved Solids	146	5.00		mg/L	1	5/10/2018 12:43:52 PM

Work Order: 1805098
CLIENT: Friedman & Bruya
Project: 805117

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: MB-R43463		SampType: MBLK		Units: mg/L		Prep Date: 5/11/2018			RunNo: 43463		
Client ID: MBLKW		Batch ID: R43463					Analysis Date: 5/11/2018			SeqNo: 840243	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.300

Sample ID: LCS-R43463		SampType: LCS			Units: mg/L		Prep Date: 5/11/2018			RunNo: 43463		
Client ID: LCSW		Batch ID: R43463			Analysis Date: 5/11/2018			SeqNo: 840244				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate 3.60 0.300 3.750 0 96.0 90 110

Sample ID: 1805098-003ADUP		SampType: DUP			Units: mg/L		Prep Date: 5/11/2018			RunNo: 43463		
Client ID: MW3		Batch ID: R43463			Analysis Date: 5/11/2018				SeqNo: 840231			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate 41.6 3.00 41.44 0.409 20 D

Sample ID: 1805098-003AMS		SampType: MS			Units: mg/L		Prep Date: 5/11/2018			RunNo: 43463		
Client ID: MW3		Batch ID: R43463			Analysis Date: 5/11/2018			SeqNo: 840232				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate 80.9 3.00 37.50 41.44 105 80 120 D

Sample ID: 1805098-003AMSD		SampType: MSD			Units: mg/L		Prep Date: 5/11/2018			RunNo: 43463		
Client ID: MW3		Batch ID: R43463			Analysis Date: 5/11/2018			SeqNo: 840233				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sulfate 81.0 3.00 37.50 41.44 106 80 120 80.87 0.173 20 D



Work Order: 1805098
CLIENT: Friedman & Bruya
Project: 805117

QC SUMMARY REPORT

Sulfide by SM 4500-S2-F

Sample ID: MB-R43431	SampType: MBLK	Units: mg/L	Prep Date: 5/11/2018	RunNo: 43431							
Client ID: MBLKW	Batch ID: R43431		Analysis Date: 5/11/2018	SeqNo: 839633							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide	ND	0.500									

Sample ID: LCS-R43431	SampType: LCS	Units: mg/L	Prep Date: 5/11/2018	RunNo: 43431							
Client ID: LCSW	Batch ID: R43431		Analysis Date: 5/11/2018	SeqNo: 839634							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide	2.00	0.500	2.000	0	100	65	135				

Sample ID: 1805098-001CDUP		SampType: DUP		Units: mg/L		Prep Date: 5/11/2018			RunNo: 43431		
Client ID: MW1		Batch ID: R43431		Analysis Date: 5/11/2018						SeqNo: 839639	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide	ND	0.500						0		30	

Sample ID: 1805098-002CMS	SampType: MS	Units: mg/L	Prep Date: 5/11/2018	RunNo: 43431							
Client ID: MW2	Batch ID: R43431		Analysis Date: 5/11/2018	SeqNo: 839641							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfide	1.80	0.500	2.000	0	90.0	65	135				

Work Order: 1805098
CLIENT: Friedman & Bruya
Project: 805117

QC SUMMARY REPORT

Total Dissolved Solids (TDS) by SM 2540C

Sample ID: MB-R43401	SampType: MBLK	Units: mg/L		Prep Date: 5/10/2018	RunNo: 43401
Client ID: MBLKW	Batch ID: R43401			Analysis Date: 5/10/2018	SeqNo: 839010
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids	ND	5.00									

Sample ID: LCS-R43401	SampType: LCS	Units: mg/L		Prep Date: 5/10/2018	RunNo: 43401
Client ID: LCSW	Batch ID: R43401			Analysis Date: 5/10/2018	SeqNo: 839011
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids	270	10.0	300.0	0	90.0	65	135				

Sample ID: 1805098-003BDUP	SampType: DUP	Units: mg/L		Prep Date: 5/10/2018	RunNo: 43401
Client ID: MW3	Batch ID: R43401			Analysis Date: 5/10/2018	SeqNo: 839603
Analyte	Result	RL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids	149	5.00				146.0	2.03	30			



Work Order Number: **1805098**

Date Received: **5/8/2018 11:11:00 AM**

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐

2. How was the sample delivered? FedEx

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 $>0^{\circ}\text{C}$ 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 ☐
			NaOH added to C Fraction ☐
12. Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☒
13. Did all samples containers arrive in good condition(unbroken)?	Yes ☒	No ☐	
14. Does paperwork match bottle labels?	Yes ☒	No ☐	
15. Are matrices correctly identified on Chain of Custody?	Yes ☒	No ☐	
16. Is it clear what analyses were requested?	Yes ☒	No ☐	
17. Were all holding times able to be met?	Yes ☒	No ☐	

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

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

Item #	Temp °C
Cooler	5.9
Sample	5.4

Page 10 of 11

1605090

100

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

TURNAROUND TIME

☒ Standard (2 Weeks) *1 week*

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Page 11 of 11

865117

SAMPLE CHAIN OF CUSTODY

ME

05/07/18 vuv/

Send Report To David Pollock & Kaleb Reed

Company ECT

Address PO Box 153

City, State, ZIP Fox Island, WA 98337

Phone #

Fax #

Email Address

David Reed@ect.us
Kaleb Reed@ect.us

SAMPLERS (signature)
PROJECT NAME/NO. 0676-01-03

PO #

0676-01-03

PROJECT ADDRESS

ELECTRONIC DATA REQUESTED

Page # 1 of 1
TURNAROUND TIME
Standard Turnaround
RUSH
Rush charges authorized by:

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

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	TDs	PAHs	Phthalates	Ph	Sulfate/sul	Arsenic, Cadm	Chromium/mn	
Mu1	01A	5/7/18	1225	W	11	XX	XX				XX	XX	XX	XX	XX	XX	XX	Total + Diss
Mu2	02A	5/7/18	1115	W	11	XX	XX				XX	XX	XX	XX	XX	XX	XX	Everything to MICALLIS
Mu3	03A	5/7/18	1015	W	11	XX	XX				XX	XX	XX	XX	XX	XX	XX	

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:		Kaleb Reed	ECT	5/7/18	1250
Received by:		David Reed	ECT	5/7/18	1300
Relinquished by:		Michael	ECT	5/7/18	1330
Received by:		Michael	ECT	5/7/18	1630

Samples received at ECT °C

Appendix E: Terrestrial Ecological Evaluation Forms

Appendix E Terrestrial Ecological Evaluation Forms



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE

Please identify below the hazardous waste site for which you are documenting an evaluation.

Facility/Site Name: Glacier Recycle

Facility/Site Address: 32300 148th Avenue SE Auburn, WA

Facility/Site No: 21135

VCP Project No.:

Step 2: IDENTIFY EVALUATOR

Please identify below the person who conducted the evaluation and their contact information.

Name: David R. Polivka

Title: Senior Hydrogeologist

Organization: ECI, Inc.

Mailing address: P.O 153

City: Fox Island

State: WA

Zip code: 98333

Phone: 360-349-0851

Fax: 253-369-6228

E-mail: david@ecocon.us

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

- ☒ Yes *If you answered "YES," then answer **Question 2**.*
- ☐ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? Check all that apply. Then skip to **Step 4** of this form.

Point of Compliance: WAC 173-340-7491(1)(a)

- ☐ All soil contamination is, or will be,* at least 15 feet below the surface.
- ☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

- ☒ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

- ☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.
- ☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

- ☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 3** below.*
- ☐ No *If you answered "NO," then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

- ☐ Yes *If you answered "YES," then answer **Question 4** below.*
- ☐ No *If you answered "NO," then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

- ☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*
- ☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? Check all that apply. Then skip to **Step 4** of this form.

Exposure Analysis: WAC 173-340-7492(2)(a)

- ☐ Area of soil contamination at the Site is not more than 350 square feet.
- ☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

- ☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. See WAC 173-340-7493(1)(c).

1. Was there a problem? See WAC 173-340-7493(2).

- ☐ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No *If you answered "NO," then identify the reason here and then skip to **Question 5** below:*
- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? See WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?

Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

- ☐ Yes If so, please identify the Ecology staff who approved those steps:
- ☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160 th Ave. SE Bellevue, WA 98008-5452	Central Region: Attn: VCP Coordinator 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	Eastern Region: Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Terrestrial Ecological Evaluation Process - Primary Exclusions

Documentation Form

Exclusion #	Exclusion Detail	Yes or No?	Are Institutional Controls Required If The Exclusion Applies?
1	Will soil contamination be located at least 6 feet beneath the ground surface and less than 15 feet?	Yes / ☒ No	Yes
	Will soil contamination located at least 15 feet beneath the ground surface?	Yes / ☒ No	No
	Will soil contamination located below the conditional point of compliance?	Yes / ☒ No	Yes
2	Will soil contamination be covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed?	☒ Yes / No	Yes
3	Is there less than 1.5 acres of <u>contiguous undeveloped land</u> on the site, or within 500 feet of any area of the site affected by hazardous substances other than those listed in the table of <u>Hazardous Substances of Concern</u> ?	Yes / ☒ No	Other factors determine
	And Is there less than 0.25 acres of <u>contiguous undeveloped land</u> on or within 500 feet of any area of the site affected by hazardous substances listed in the table of <u>Hazardous Substances of Concern</u> ?	Yes / ☒ No	
4	Are concentrations of hazardous substances in the soil less than or equal to natural background concentrations of those substances at the point of compliance	Yes / ☒ No	No

[\[Exclusions Main\]](#) [\[TEE Definitions\]](#) [\[Simplified or Site-Specific?\]](#) [\[Simplified Ecological Evaluation\]](#) [\[Site-Specific Ecological Evaluation\]](#) [\[WAC 173-340-7493\]](#)

[\[TEE Home\]](#)